

Efficient Appliances for People & the Planet

From Informational to Comparative: The New Philippine Energy Label

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AUTHORS

Katriana Dubytz, CLASP

Lina Kelpsaite,
CLASP

CONTACT

info@clasp.ngo

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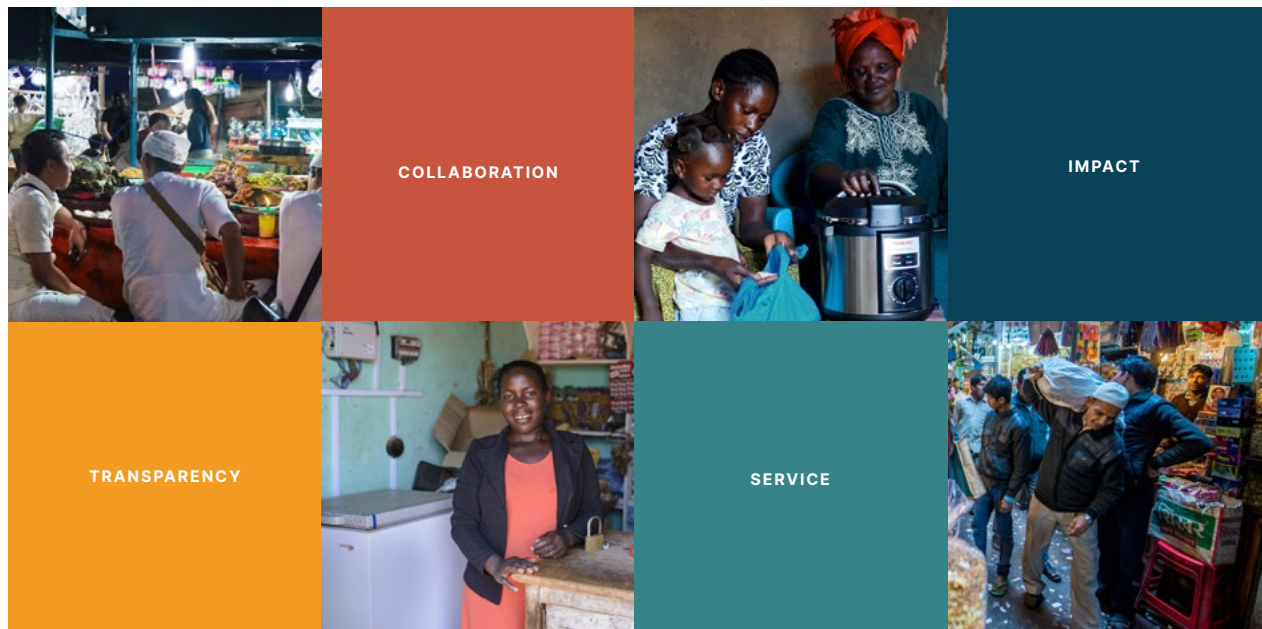
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CONTENTS

Executive Summary	2
Overview	6
Methodology	10
Survey Findings	14
Best Practices: Labeling Programs	29
Best Practices: Consumer Communications	32
Recommendations	38
Appendix A. Detailed Consumer Survey Methodology	43
Appendix B. Case Studies	46
Endnotes	58

Executive Summary

Overview

Energy consumption has nearly doubled over the past decade in the Philippines, prompted by grid expansion and increased demand. The government is prioritizing energy efficiency policy as a tool to achieve its energy goals and ambitious national targets, including a 10% energy demand reduction by 2030 while continuing to advance economic development and a 75% reduction in carbon emissions, as indicated in their 2021 Nationally Determined Contributions (NDCs).

The Philippine Department of Energy (DOE) has a mandate to develop Minimum Energy Performance requirements for Products (MEPP) and prescribe energy labels for regulated energy-consuming products per the 2019 Energy Efficiency and Conservation Act (EE&C Act). The DOE's recently launched Philippine Energy Labeling Program (PELP) aims to empower consumers to choose energy-efficient products, reduce national energy consumption and emissions, and eliminate inefficient products from the market. The impacts of this program contribute to meeting the Philippine Energy Plan's 2020-2040 goals and the government's long-term vision, AmBisyon Natin 2040.

Energy labels drive product markets to higher efficiency by allowing consumers to make informed purchasing decisions, incentivizing the production of more efficient products, and providing the foundation for market transformation programs. The DOE has implemented comparative energy labels for regulated products since 1995.

In June 2021, the Philippines adopted the PELP Implementing Guidelines, which included revised MEPP and labeling requirements for **air conditioners (ACs), refrigerating products, lighting products, and TVs**. The Guidelines introduced a new energy label design including a 5-star rating system and a QR code for consumers to access additional product and performance information online.

The Study

This study was conducted to gather insights from consumers, retailers, and industry about their awareness, comprehension, and attitudes toward the PELP, including the new star-rating label and the old yellow label. The project was implemented under [Rapid Response Facility](#), a technical assistance initiative to support countries' energy transitions.

Project objectives included:

- **Strengthening the PELP, considering the recently launched star-rating label**
- **Increasing consumer awareness of energy labels**
- **Promoting a high-efficiency air conditioner market in the Philippines**

The surveys evaluated how the label informs consumer purchasing decisions for ACs and energy efficiency awareness measures that are best received by the stakeholder groups. Along with stakeholder focus group discussions (FGDs), a key informant interview (KII), and desk research, the survey findings were used to inform awareness raising and communications strategies for the DOE to promote the PELP label and the benefits of energy-efficient products.

Key Survey Findings

AC OWNERSHIP & ELECTRIC BILL

- **97% of respondents own at least one room AC, 85% at least one window unit, and 37% at least one split unit**
 - Of these, 51% are fixed speed (66% window, 16% split) and 49% inverter (34% window, 84% split), indicating consumers are more likely to purchase split type ACs with an inverter compressor than window type
 - The average number of ACs per household increases with higher monthly income (1.3 units in low-income households compared to 3.0 units in high-income households)
- **61% of respondents run their AC(s) for over six hours a day**
 - Lower income households run their AC(s) for fewer hours daily compared to higher income households
- **62% often or always limit the use of ACs due to electricity costs, across income classes**
 - 66% state that their ACs contribute *largely or significantly* to their electric bill
 - 90% of respondents pay more than PhP 2,000 monthly in electric bills
 - Half of respondents think their electric bill is *fairly priced*, while 30% think it is *not affordable* or *slightly unaffordable*

AC PURCHASING BEHAVIOR

- **Consumers prioritize efficiency (86%), durability (85%), and good value for money (83%) as very important or important when buying ACs**
 - With increasing income, fewer respondents take into consideration *good value for money* but more prioritize *durability* and *long warranty*, indicating the increased financial flexibility of higher income households allows them to be less concerned with upfront costs
 - More middle- and high- income households (80%) prioritize high efficiency compared to about half of low-income households, possibly due to the perception that efficient ACs cost more
 - Nearly 70% of interviewed consumers are motivated by discounts and 57% by warranties and free installation
- **The most popular means to inform AC purchases are online research, recommendations from friends, relatives, and others, and only buying preferred brands of appliances**
 - Recommendations from salespeople is not a popular means, consistent with responses that only 19% of consumers considered them when they purchased their last AC
- **Consumers identified high price (64%), lack of awareness (29%), and limited product availability (20%) as the main barriers to buying efficient ACs**
- **Retailers use salespeople (85%), brand brochures (56%), and signage such as posters and streamers (37%) to promote energy-efficient ACs**
 - 89% of retailers and industry respondents use energy labels in their advertisements and promotions at least *sometimes*

ENERGY LABEL AWARENESS

- **21% of consumers had seen the star-rating label compared to 87% who had seen the old yellow label before**
 - Of those who have seen them, most knew about the labels from a retailer visit (62% old, 54% new), followed by social media or the internet (13% old, 18% new), word of mouth (9% old, 11% new), and TV (8% old, 7% new)
 - Of those who have seen the labels, most (63% old, 69% new) *somewhat* or *strongly agree* that they understand the purpose of the labels
- **25% of consumers inaccurately responded that a product labeled one star means it is *efficient* or *very efficient***
 - Although 84% of consumers accurately indicated that the stars in the energy efficiency label stand for energy savings, only 25% accurately responded that a product labeled one star means it is *inefficient*
- **85% of consumers expressed interest in the new QR code feature**
 - 40% have used the QR code and found it useful and 46% have not but would be interested in using it, indicating the new feature is generally well-received but not yet widely utilized
- **82% of consumers *agree* (54%) or *strongly agree* (27%) that the star-rating energy label is more effective in promoting efficient ACs than the old yellow label**
 - 91% of consumers who had already seen the new label responded they are *very likely* or *likely* to consider the star-rating when deciding which AC to buy, compared to 75% of those who saw the star-rating label for the first time during the survey

PELP AWARENESS

- **20% of consumers and 40% of retailers were aware of PELP by name**
 - Lower retailer awareness of PELP (40%) compared to the label requirements (81%) can be attributed to retailers being aware of DOE's long-standing energy labels but not necessary of the newly launched PELP
 - All 3 industry respondents were aware of PELP
 - Of consumers who were aware of PELP, 96% thought that energy labels are an effective way to promote efficient products
- **81% of retailer respondents were aware of DOE's labeling requirements and 73% indicated that at least *half* of their salespeople can explain the star-rating energy label to consumers**
 - 37% stated they received training or information about PELP from the DOE at least once

Recommendations

Considerations and recommendations for the DOE under each project objective were informed by desk research, interviews, and findings from consumer and other stakeholder surveys. Bearing in mind that the PELP program was recently launched and the DOE may have already considered some recommendations, they include:

Objective 1: Strengthening the PELP, considering the recently launched star-rating label and new requirements for ACs, refrigerating products, lighting products, and TVs

- Develop a **roadmap for label revision** with frequent triggers and a schedule that offers industry sufficient time to prepare for policy changes
- Coordinate with the Philippine Statistics Authority's (PSA) on its **Household Energy Consumption Survey (HECS)**

Objective 2: Increasing consumer awareness of energy labels so they can make better-informed purchasing decisions

- Provide consumers **guidelines for understanding the label**, including how to interpret the star-rating, and explore **QR codes as an opportunity to share guidance**
- Highlight **reduced operating costs as a long-term benefit** of efficient products, since consumers considered price the most important factor when buying ACs
- Invest in **social media and online ad campaigns** to educate consumers and **conduct a baseline and endline survey** for any education and awareness raising efforts
- Develop a targeted approach for **parents and homeowners aged 35-44** (the most common demographic of decision-makers responsible for appliance purchases) as well as **consumers with less education** (who were more concerned with energy bill costs, less aware of what EER means, and less aware of the value of the energy label when purchasing ACs)

Objective 3: Promoting a high-efficiency air conditioner market in the Philippines through engaging with retailers and industry stakeholders

- Offer more **high-visibility trainings for retailers/industry** to learn about the new star-rating label, ensuring opportunity to directly engage with the DOE
- Develop a **promotional toolkit for retailers/industry** with training, educational, and marketing resources, including materials for salespeople and consumers
- Consider partnering with the **Department of Trade and Industry (DTI)**, leveraging its strong social media presence with consumers as well as relationship with industry



Overview

Background

PURPOSE OF STUDY

This study was conducted to gather insights from consumers, retailers, and industry about their awareness, comprehension, and attitudes toward the Philippine Energy Labeling Program (PELP) considering its transition from the old yellow label to a new star-rating label. The survey evaluated the label's influence on consumer purchasing decisions for air conditioners (ACs) and which energy efficiency awareness measures are best received by the stakeholder groups. These were used to inform awareness communications strategies for the Philippines Department of Energy (DOE) to promote the PELP label and the benefits of energy-efficient products. The project was implemented under [Rapid Response Facility](#), a technical assistance initiative to support countries' energy transitions.

Project objectives included:

- **Strengthening the PELP**, especially considering new requirements for ACs, refrigerating products, lighting products, and TVs
- **Increasing consumer awareness of energy labels** so they can make better-informed purchasing decisions
- **Promoting a high-efficiency air conditioner market in the Philippines** through engaging with retailers and industry stakeholders

PHILIPPINES CONTEXT

Energy consumption has nearly doubled over the past decade in the Philippines, prompted by grid expansion and increased demand. The updated Philippine Energy Plan 2020-2040ⁱ outlines transformative actions for attaining secure, sustainable, reliable, quality, and reasonably priced energy for the country in line with the government's long-term vision, [AmBisyon Natin 2040](#).¹ The government is prioritizing energy efficiency policy as a tool to achieve its energy sector goals and ambitious national targets, which include a 10% energy demand reduction by 2030 concurrent with further economic developmentⁱⁱ and a 75%

reduction in carbon emissions (indicated in their [2021 Nationally Determined Contributions](#)).²

The 2019 Energy Efficiency and Conservation Act (EE&C Act) seeks to promote the development and use of efficient and renewable energy technologies, reinforce related laws on energy conservation, and ensure a market-driven approach to energy sufficiency, conservation, and sustainability in the country. One provision includes the DOE's mandate to develop Minimum Energy Performance requirements for Products (MEPP) for energy-consuming products through particular product requirements (PPR).ⁱⁱⁱ The EE&C Act also mandates that the DOE prescribe energy labels for regulated energy-consuming products, devices, and equipment under the PELP.

ENERGY LABELS

Many countries use energy labels as a tool to engage consumers, retailers, and industry in promoting more efficient products. Energy labels drive higher efficiency by:

- **Giving consumers vital information about efficiency when purchasing appliances**, like energy performance and differing levels of efficiency. Label effectiveness depends on the clarity of the information provided and consumer understanding of the benefits from more efficient products.³ Examples include the associated trade-off between up-front and operating costs and environmental impacts.
- **Incentivizing production of more efficient products** by helping manufacturers market and differentiate their high-efficiency products. This in turn encourages investments in research and development to further improve product technology. Labels also provide unbiased evidence about product efficiency and help justify potentially higher up-front costs in favor of lower operating costs.

i. Previous Energy Plan 2018-2040

ii. Philippine Energy plan 2017-2040, <https://www.doe.gov.ph/pep>

iii. PPRs provide the detailed technical requirements for air conditioners and other regulated products covered by PELP

- **Providing the foundation for market transformation programs** by indicating which high-efficiency products policymakers should target for bulk purchasing, financing, and incentives. With frequent updates to the label tiers, labels can continuously serve this function, as the highest tier signals a high-efficiency product relative to the average efficiency in the market. In such a case, basing a market transformation program on the highest labeling tier can lead to noticeable improvement in the average efficiency in the market.

Philippine Energy Labeling Program (PELP)

FRAMEWORK

The PELP aims to empower consumers to choose energy-efficient products, reduce national energy consumption and emissions, and eliminate inefficient products from the market. The PELP is currently overseen by the DOE's Energy Utilization Management Bureau (EUMB) and its lead division, Energy Efficiency and Conservation Performance Regulation and Enforcement Division (EPRED). Energy Research and Testing Laboratory Services (ERTLS) provides testing services for the program.

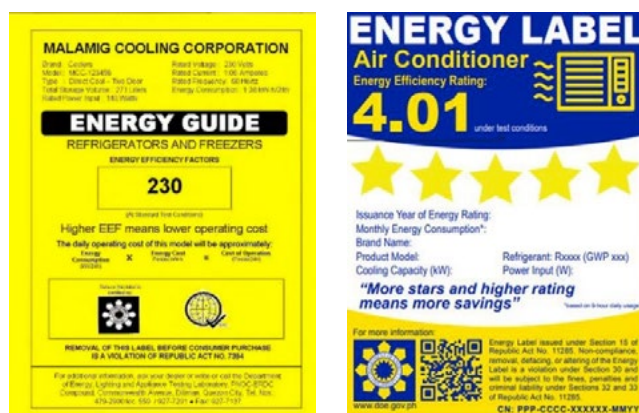
In 2020, the DOE published *Circular 2020-06-0015: Prescribing the Guidelines of the PELP for Compliance of Importers, Manufacturers, Distributors, and Dealers of Electrical Appliances and other Energy-Consuming Products (ECPs)*. The policy mandates that the DOE's EUMB formulate, promulgate, and review the PELP policy as well as enforce industry and retailer compliance with the program.^{iv} It also lists industry responsibilities regarding their products bearing energy labels.

The DOE, in collaboration with the Department of Trade and Industry's (DTI) Bureau of Philippine Standards (BPS), has maintained a comparative energy label for regulated products since 1995. This label showed energy performance but did not feature any visual ranking system (e.g., stars, alphabet grade) to inform consumers of relative energy

efficiency. A 2011 Household Energy Consumption Survey^{iv} showed that only 26% of households were aware of the energy labeling program and 27% utilized the information on the labels to guide their purchasing decisions.

In June 2021, the Philippines adopted the **PELP Implementing Guidelines**, which included revised MEPP and labeling requirements for **ACs, refrigerating products, lighting products, and TVs**. The Guidelines introduced an improved energy label design including a 5-star rating system (Figure 1), with 1 star representing the least efficient and 5 stars representing the most efficient products on the market, allowing consumers to compare product efficiency levels. The new label also includes a QR code for consumers to access additional product and performance information online that the manufacturer or supplier provides.

FIGURE 1: OLD YELLOW LABEL & NEW STAR-RATING LABEL



The requirements of the PELP Implementing Guidelines were implemented in steps:

- **August 2021:** company registration for importers, manufacturers, and distributors of regulated products
- **November 2021:** obtaining new labels for lighting products
- **January 2022:** obtaining new labels for ACs, refrigerators, and TVs

As of 30 September 2022, 61 companies were registered in the PELP system and energy labels were issued for 1,713 models across four product

iv. As published by the Philippine Statistics Authority and DOE

categories: 690 air conditioner models, 450 lighting products, 285 refrigerating products, and 288 television sets (Figure 2).

Given the significant changes in the PELP requirements, the DOE aimed to ease the registration process and transition to the star-rating label by:

- Introducing an online company and product registration process
- Delegating product testing for registration to DOE-accredited testing laboratories
- Allowing until 10 January 2023 for the transition period, during which products with old yellow label can still be sold

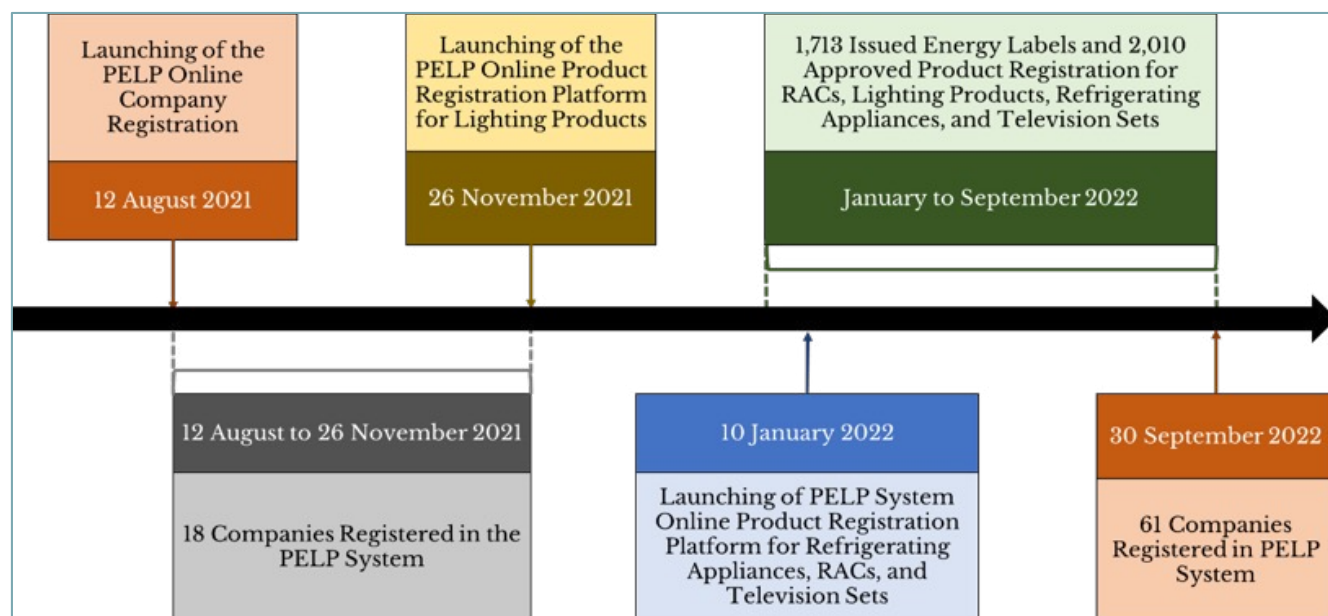
The DOE conducts information, education, and communication (IEC) campaigns (e.g., mall tours and commercials) to help spread awareness of the DOE's programs such as the PELP. The DOE is also reviving an earlier project, Wattmatters,^v an

online catalog of products registered under the PELP for consumers to compare products, including calculating estimated operating costs. This is expected to further boost the visibility of energy labels in the Philippines.

PELP AC REQUIREMENTS

The DOE's *Implementing Guidelines of the Philippines Energy Labeling Program for Air Conditioners*^{vi} cover single-phase air conditioners with cooling capacities up to 50,000 kJ/hr or 14 kW for domestic and similar use, including window and split-type systems with fixed-speed and inverter compressors. Split-type systems include wall-mounted, floor-standing, cassette-type, and ceiling-suspended types. The old yellow label requirements only applied for fixed-speed window and split air conditioning systems with capacities up to 30,000 kJ/hr.^{vii} This study focuses on the energy labels for **window and split wall-mounted type ACs**,^{viii} which are most common in the residential sector.

FIGURE 2: PELP REGISTRATION AND ENERGY LABEL ISSUANCE AS OF 30 SEPTEMBER 2022



Retrieved from the PELP Database: <https://www.doe.gov.ph/pelp?q=pelp%2Fpelp-database>

v. wattmatters.org.ph

vi. <https://www.doe.gov.ph/sites/default/files/pdf/issuances/implementing-guidelines-01-pelp-ig-acu.pdf?withshield=>

vii. The Philippine National Standard (PNS) 396-1 included requirements. Last revision of the standard was in 200

viii. In this report we reference the air conditioning systems as air conditioners (ACs) and not room air conditioners (RACs).



Methodology

Qualitative and quantitative data collection for this project included consumer, retailer, and industry surveys, as well as online focus group discussions (FGDs) with government stakeholders and a key informant interview (KII). We supplemented these activities with desk research on labeling program and consumer communication best practices.

Survey Instrument Design

The survey was led by our local partner, Innogy Solutions Inc., who designed questionnaires for consumers, retailers, and industry stakeholders. Table 1 outlines the content for each questionnaire. Prior to survey implementation, Innogy piloted the three questionnaires with small groups of respondents to ensure that the questions were clear and appropriate for Filipino consumers, retailers, and industry.

TABLE 1: SURVEY CONTENTS BY STAKEHOLDER GROUP

ALL SURVEYS	CONSUMER	RETAILER & INDUSTRY
Understanding of the concept of energy efficiency	AC ownership and usage	Extent of new label implementation for ACs
Awareness of PELP and the energy labeling scheme	Factors that influence AC purchases	Ability to explain the old and new label to consumers
Comprehension of both old yellow label and new star-rating label	Sources that inform purchasing decisions (e.g., word of mouth, TV)	Perceived impact of the new label on AC sales
Consumer behavior when buying PELP-covered products, specifically ACs		

Data Collection

Innogy aimed to collect responses from 350 consumers, 40 retailers, and 10 industry representatives, however, due to difficulty engaging with retailers and industry, the strategy pivoted to collecting more consumer responses than initially planned and fewer from the other stakeholder groups (Table 2).

TABLE 2: TARGET RESPONDENTS BY STAKEHOLDER GROUP & MEANS OF SURVEYING

GROUP	MEANS	TARGET	ACTUAL
Consumers	Door-to-door & online survey	350	386
Retailers	Intercept at retail stores	40	27
Industry	Online survey	10	3
Total	--	400	416

Innogy recruited enumerators to assist with the consumer and retailer surveys. The industry survey was conducted exclusively online without enumerator assistance. Innogy trained enumerators on the purpose, content, and process for both in-person (door-to-door, retailer intercept) and online survey administration. For in-person surveys, enumerators guided respondents in filling out printed versions of the questionnaire. Enumerators then entered the responses into a Google Form to centralize all collected data. For online surveys, enumerators were given the flexibility to guide respondents through the questions via online meetings (Zoom, Microsoft Teams, etc.) or other means they deemed fit.

Consumer survey. Innogy disseminated the Google Forms survey link on its Facebook page and Viber groups. They also requested regulatory agencies such as DOE, as well as the retailer and industry associations, to share the surveys with their networks to have a broader reach.

Retailer survey. The Philippine Retailers Association (PRA) disseminated the questionnaire to its members at the request of the DOE. However, no PRA members were able to attend the planned FGD. As a result, Innogy shifted its approach to enumerator-assisted retailer visits.

Industry survey. Innogy disseminated the online questionnaire to members of the Philippine Appliance Industry Association (PAIA) during their FGD.

Consumer Survey Sample

For the consumer survey, Innogy targeted roughly equal representation across geography, gender, age, education level, and income class. We paid particular attention to which demographics would be more likely to purchase ACs, for example, focusing less

on responses from youth under 15 and consumers in Class D/E with limited purchasing power (Table 3). A detailed breakdown of target respondents across variables is available in Appendix A: Detailed Methodology.

TABLE 3: VARIABLES CONSIDERED FOR CONSUMER SURVEY

VARIABLE & RATIONALE	CATEGORIES	
Geography Different climate zones, levels of urbanization, & available AC models. Survey focused on HUCs due to the relatively high purchasing power of its residents.	<ul style="list-style-type: none"> 33 Highly urbanized cities (HUCs)ⁱ Top 10 component cities (CCs)ⁱⁱ 	<ul style="list-style-type: none"> Top 2 cities with highest recorded temperatures Other
Gender Influence of gender on role in purchasing decisions & access to information.	<ul style="list-style-type: none"> Male Female 	
Age range Influences access to information & priorities. Survey focused on the standard age groups of decision makers in Philippine households.	<ul style="list-style-type: none"> Under 15 15 to 24 25 to 34 35 to 44 	<ul style="list-style-type: none"> 45 to 54 55 to 64 Above 64
Education level Influences access to information & awareness.	<ul style="list-style-type: none"> No educational attainment Elementary school (primary education) High school (secondary education) 	<ul style="list-style-type: none"> College (tertiary education) Post-graduate (higher education)
Income class Monthly household income Influences purchasing power. Class D/E was not surveyed extensively due to reduced likelihood households could afford to purchase ACs.	<ul style="list-style-type: none"> Class A (Above PhP 150,000) Class B1 (PhP 85,001–150,000) Class B2 (PhP 50,001–85,000) 	<ul style="list-style-type: none"> Class C (PhP 25,000–50,000) Class D/E (Below PhP 25,000)

GEOGRAPHY

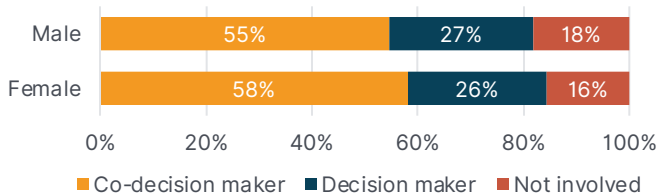
Most consumers were from HUCs (67%); the remaining were from component cities (12%), hot areas (1%), and other cities (19%). We collected the **most responses (28%) from the National Capital Region (NCR - Metro Manila)**, followed by Region IV (11%) and Region X (9%). The cities with the highest response rates were Quezon (28 respondents), Cagayan de Oro (26), Manila (19), and Butuan (16).

GENDER, AGE, & EDUCATION LEVEL

About two-thirds (63%) of respondents were female and a third (37%) male, from 16–81 years old. **The majority (61%) were 25–44**, the typical age range of young professionals or parents whose children still live with them. Respondents' role in making AC purchasing decisions did not vary much by gender (Figure 3). **Most (84%) respondents had a college or post-graduate degree** and few were

only graduates of secondary (15%) or elementary (1%) school.

FIGURE 3: DECISION-MAKER STATUS BY GENDER

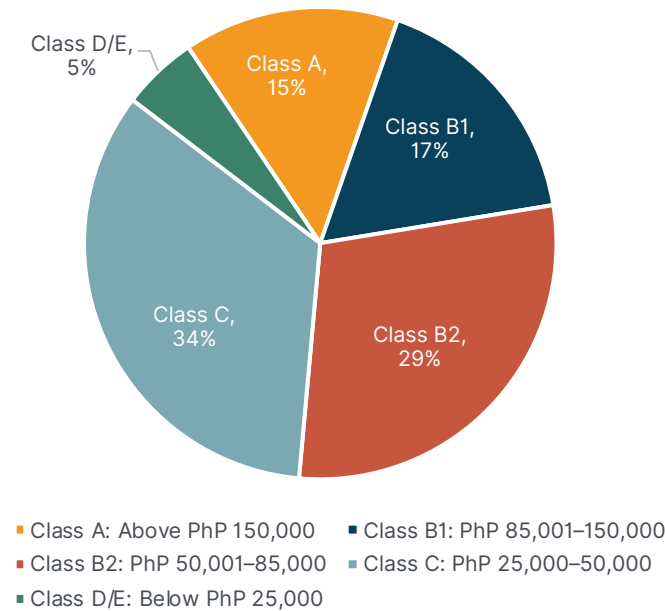


INCOME CLASS

The survey focused on middle- and high-income households, which have the purchasing power to buy new, efficient ACs. As shown in Figure 4, **80% of respondents are classified as middle-income** (Classes B1, B2, and C), 15% high-income (Class A), and 5% low-income (Classes D/E).

i. Minimum population of 200,000 and annual income of at least 50 million pesos
 ii. Cities under a province's jurisdiction

FIGURE 4: MONTHLY HOUSEHOLD INCOME



FGDs & KII

Innogy conducted online FGDs with the DOE, DTI, and PAIA, and a key informant interview (KII) with Meralco. A breakdown of roles in relation to PELP, attendees, and topics covered for each is available in Appendix A: Detailed Methodology

Data Processing and Analysis

DATA CLEANING & QUALITY ASSURANCE

Innogy's team configured online survey tools with response validation rules to the extent possible. The team corrected responses that were confirmed to be erroneous with the respondents or enumerators. They also corrected open-ended responses (e.g., misspelled words, uniformity in formatting, rewording for clarity) for grouping them into themes for quantitative analysis. Other quality assurance included removing duplicate entries from the same respondent or household, harmonization of address fields, and confirmation of outliers in quantitative data.

DATA ANALYSIS

After data cleaning, qualitative data from open-ended questions were grouped into themes. Numerical responses to scaled questions were assigned categorical values. We performed

quantitative analysis using Statistical Package for Social Science (SPSS) and MS Excel. A running T-test ($P < .05$, 95% confidence) was performed to assess differences in responses between male and female respondents. Analysis of Variance (ANOVA) ($P < .05$, 95% confidence) was conducted to assess differences between responses by educational attainment, and consequently a post-hoc test to analyze which groups means differed from one another.

Survey Limitations & Challenges

Due to the project timeline and resources, the primary limitation of this study is sample size. This is particularly notable for the industry survey, where we were only able to secure three responses. It is unclear whether this is due to difficulty securing support on dissemination efforts or lack of industry buy-in about the importance of the study. The industry survey results were not analyzed in depth as they could not be considered representative of the AC industry in the Philippines.

Since the PELP launched its new online company registration platform in August 2021, there has been about a one-year period where consumers could see the new star-rating label in stores. Considering application of the new star-rating label is not required until January 2023, there was not yet widespread representation of the label on the market at the time of surveying, and few consumers (24%) purchased an AC within the past year. This could also impact retailer responses, who may not have had sufficient consumer interactions to fully develop their opinions on the new label yet. We accounted for the limited opportunity for consumer exposure to the new label by including a section in the questionnaire to collect feedback from consumer respondents seeing it for the first time. Innogy also indicated that consumers would be more likely to comprehend the survey questions in Filipino but decided enumerator assistance would sufficiently address any comprehension concerns.



Survey Findings

Respondent Characteristics

LIVING SITUATION, ENERGY BILLS, & DECISION-MAKING

We asked consumers about their living situation to better understand the impact that different levels of home ownership have on AC purchasing behavior. **Half (52%) of respondents own their homes**, while a quarter rent (22%) or live with others rent-free (26%). Figure 5 shows that rate of ownership increases with age—less than half (45%) of respondents under 24 own their homes,

compared to respondents 64 and older who are all homeowners. Three-quarters (76%) live in homes with 1–3 bedrooms. **Most (90%) respondents who own or rent are involved in decision-making** for ACs purchases, while only 69% of respondents who live with others are involved. Respondents aged 35–44 were most likely to be decision makers.

FIGURE 5: RESPONDENT HOME OWNERSHIP WITHIN AGE GROUPS

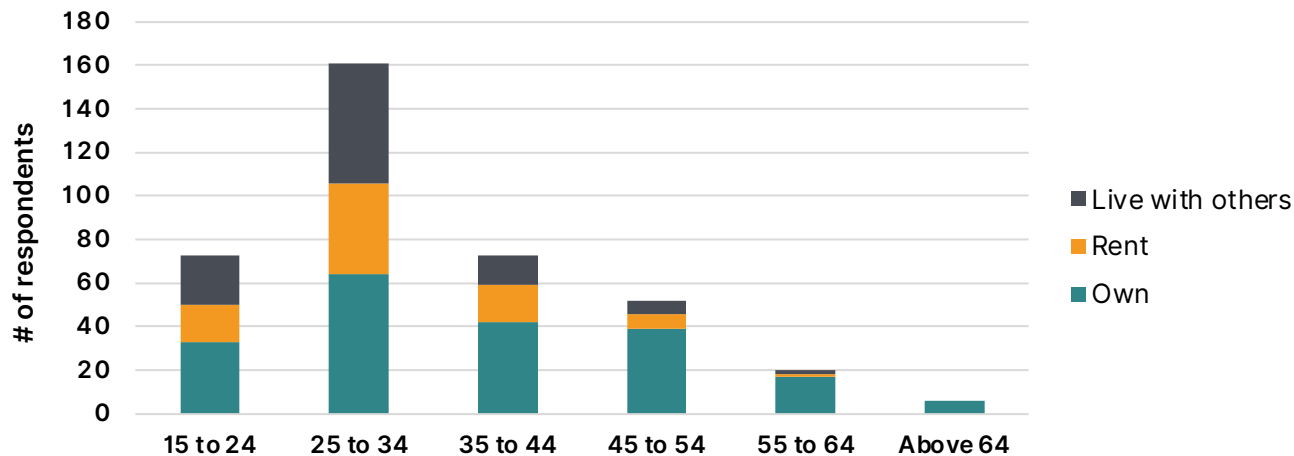
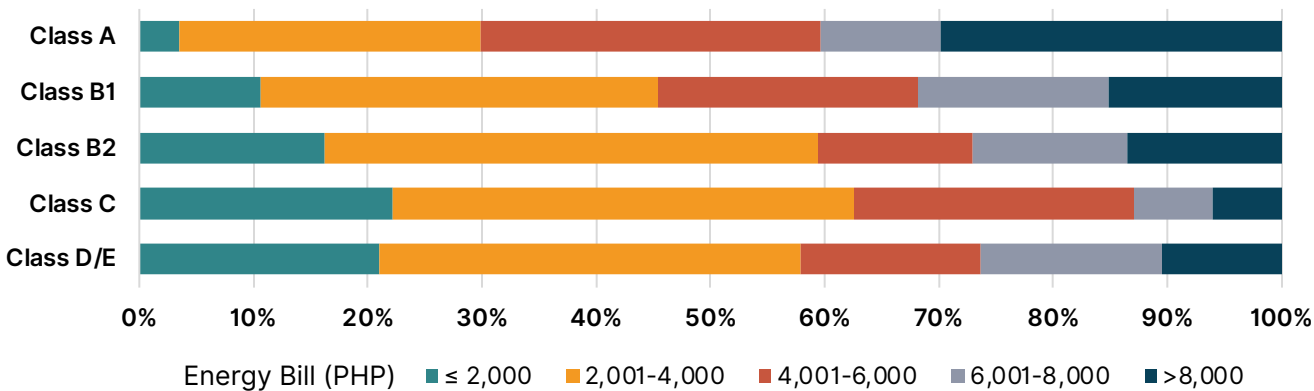


FIGURE 6: MONTHLY ENERGY BILLS BY INCOME CLASS



About **58% of respondents from middle- and low-income classes pay PhP 4,000 or less for electricity per month**, while 70% of high-income households have monthly electricity bills above PhP 4,000 (Figure 6). Monthly energy bills are most notably higher for respondents in Class A.

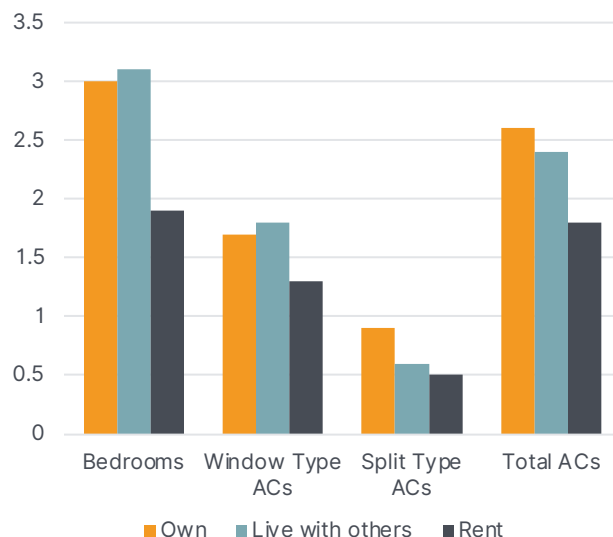
AC Ownership & Usage Patterns

AC OWNERSHIP

The most common ACs in the residential sector are window and split types. Most respondents own either one (36%) or two (30%) ACs, while 15% own three units, and 17% own four or more. **97% of respondents own at least one room AC,ⁱ 85% at least one window unit, and 37% at least one split unit.ⁱⁱ** Of these, 51% are fixed speed (66% window and 16% split) and 49% are inverter (34% window and 84% split), indicating consumers are more likely to purchase split type ACs with an inverter compressor than window type. However, when compared to CLASP's 2019 Air Conditioner Market Study, the share of window type units with inverter technology appears to be increasing.ⁱⁱⁱ

On average, respondents who own their homes or live with others have more bedrooms (3) and AC units (2.4-2.6) compared to respondents who rent (1.9 bedrooms, 1.8 AC units) (Figure 7). The more bedrooms in the household, the more installed ACs. **The number of ACs per household slightly increases with higher monthly income.** On average, households in Class D/E own 1.3 AC units compared to 3.0 units in Class A (Figure 8).

FIGURE 7: AVERAGE # OF BEDROOMS & ACS PER HOUSEHOLD BY LIVING SITUATION

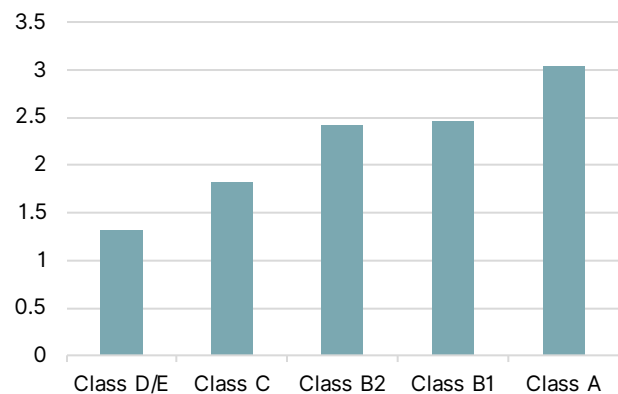


i. We report only on window and split types as those are the most common types of ACs used in Filipino households.

ii. From CLASP's 2019 air conditioner market assessment: 70% of surveyed models were window type, 28% split, and 2% portable.

iii. In 2019 CLASP's air conditioner market assessment nearly 87% of window units on the market have fixed-speed compressor whereas the majority of split units, 78%, have inverter technology.

FIGURE 8: AVERAGE # OF ACS PER HOUSEHOLD BY INCOME CLASS



AC USAGE

Because of relatively high temperatures throughout the year, ACs are essential to provide cooling and comfort in the Philippines. **61% of respondents run their AC(s) for over six hours a day. Lower income households run their AC(s) for fewer hours daily** compared to higher income households. About 65% of households from Class D/E run ACs for less than six hours a day, likely to reduce electricity costs, compared to 37% of high-income households (Figure 9).

The average monthly electricity bill in the Philippines is PHP 1,950.90,⁵ however, 90% of consumers indicated that they pay more than PhP 2,000 monthly. Households with higher electric bills run ACs for longer (over six hours)—88% of households with bills greater than PhP 8,000 compared to 38% with bills under PhP 2,000 (Figure 10). 66% of respondents **believe their ACs contribute largely or significantly to their electric bill** and **62% often or always limit the use of ACs due to electricity costs**, across income classes. Women were more likely to limit usage compared to men. This implies consumers likely forego comfort cooling to ensure they can afford their monthly electricity bill. Energy-efficient ACs can help reduce electric bills, and in turn, the need to limit AC usage in uncomfortable conditions.

FIGURE 9: NUMBER OF HOURS AC IS OPERATED PER DAY BASED ON HOUSEHOLD MONTHLY INCOME

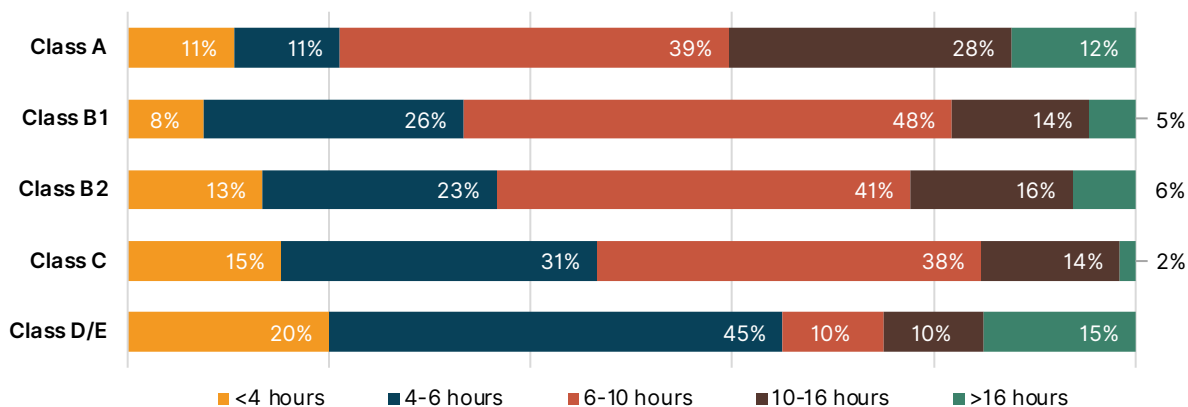
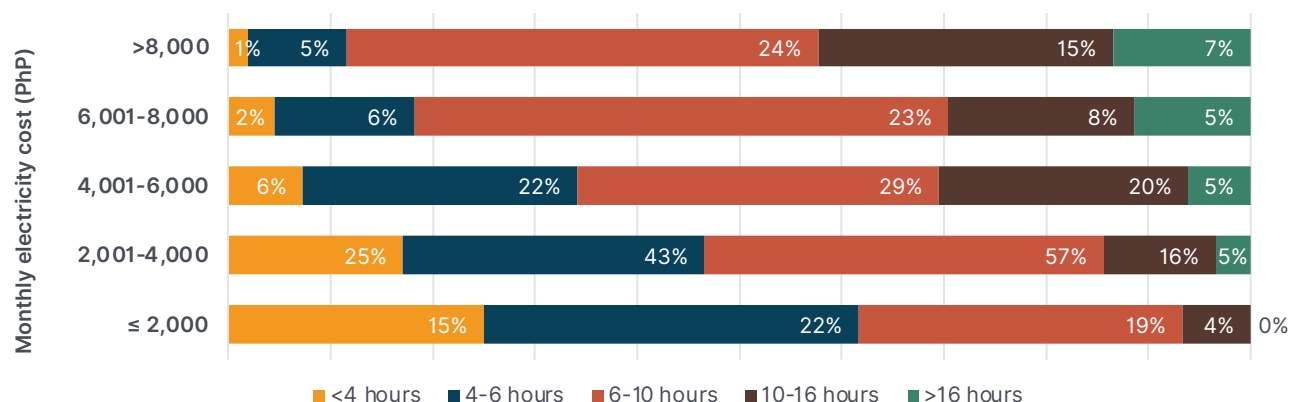


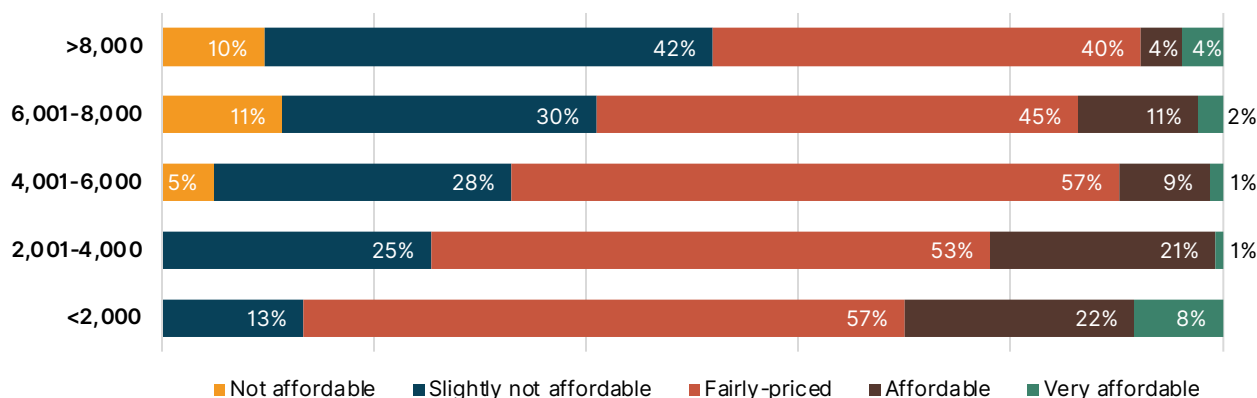
FIGURE 10: MONTHLY ELECTRICITY BILL AND NUMBER OF HOURS AC IS OPERATED PER DAY



Half of respondents **think their electric bill is fairly priced**, while **30% think it is not affordable or slightly unaffordable**. This corresponds with the findings that 27% of respondents are *not satisfied* or *somewhat unsatisfied* with their electricity bill, while 39% are *satisfied*. More respondents who incur

higher electric bills think their bill is *not affordable* or *slightly unaffordable* (Figure 11). Regarding satisfaction with the ACs respondents own, 78% are *satisfied* or *very satisfied* with the cooling capacity and about half with how quiet they are and how little maintenance they require.

FIGURE 11: RESPONDENT PERCEPTION ON AFFORDABILITY OF MONTHLY ELECTRICITY BILL



AC Purchasing Behavior

RETAILER & INDUSTRY PROFILES

We surveyed 27 representatives from retailers: **19 appliance stores** (e.g., Abenson, SM Appliances), **3 supermarkets** (e.g., SM Supermarket, S&R, Puregold), **3 hardware stores**, and **2 depot/general merchandise shops**. Most (70%) retailers were from Luzon, followed by 37% from Region 4A and 33% from the National Capital Region (NCR -Metro Manila). Most (73%) representatives had been with the retailer for at least 3 years. 30% represented management and over half (56%) were from sales, including promoters, retailers, and product specialists.

Industry representatives included one manufacturer and two AC importers based in the NCR - Metro Manila. All manufacture or import **window and split AC units, and distribute them through e-commerce platforms, supermarkets, and appliance stores**. All representatives had been with their company for at least seven years.

RETAILER & INDUSTRY AC SALES

The surveyed manufacturer produces units with 3- to 5-star labels and the importers import 1- to 5-star ACs. Two respondents highlighted that 4- and 5-star ACs had the highest sales in the past quarter. All agreed that sales were likely positively impacted by the star-rating label.

23 retailers sell both window and split AC units, while the remaining 4 sell only window units. Due to the significant variance in retailer sizes (4-250 employees), sales varied between 3-350 new AC units per month, with a hardware store selling the least and an appliance store selling the most. Retailers indicated that sales increase significantly during promotions, holiday sales, and summer.

Nearly all (26) retailers sold or sell AC units with the old yellow label and 15 (56%) stores sell ACs with the new star-rating label. Retailers with star-labeled ACs usually sell 2- to 5-star ACs, most frequently 5-star units (37%), followed by 4-star (30%) and 3-star (26%) units (Figure 12). During the FGD with the manufacturers' association,

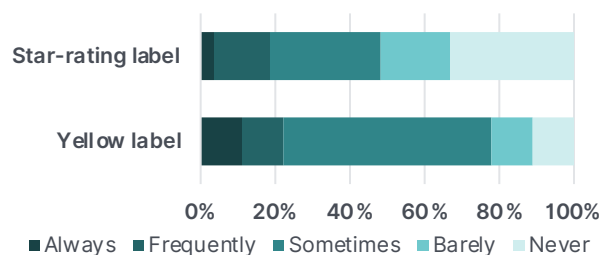
manufacturers noted that they prefer to promote ACs with high star-ratings, as the 5-star label is more visually appealing.

FIGURE 12: NUMBER OF STORES SELLING STAR-RATING LABELED ACS



Notably, **85% believe that energy labels favorably affect the sales of more efficient ACs, and 89% use labels in their promotional materials at least sometimes**. All retailers reported that consumers inquire about energy efficiency at least *sometimes*, but not necessarily about the energy label. Consumers asked (*always, frequently, or sometimes*) about the old yellow label (78%) more often than about star-rating label (48%), as shown in Figure 13, which may indicate lower visibility of the new label at the time of the study. Consumers who inquired about the star-rating label most often wanted to know about energy savings, as well as how to interpret the star-rating.

FIGURE 13: HOW FREQUENTLY CONSUMERS ASK ABOUT THE OLD AND NEW LABELS



RECENT CONSUMER AC PURCHASES

25% of consumers **purchased their last AC in the past year** (the timeframe consumers have had opportunity to see the new star-rating label) and **80% in the past 5 years** (Figure 14). 78% of consumers purchased their last AC in appliance stores (SM and Abenson products were the most popular), 8% in supermarkets, 1% online, and the remaining

through distributors or secondhand stores ('Other' category). Representatives from the AC industry reported that they are increasing marketing efforts for online sales due to the pandemic.ⁱ

There are over 48 AC brands in the Philippines. ⁶Consumers purchased Carrier, LG, Panasonic, Condura, and Kolin brand ACs most frequently, representing 60% of responses (Figure 14). The popularity of these five brands gives the manufacturers a significant influence over the AC market, particularly since Carrier, Koppel, Panasonic, and Condura are produced locally in the Philippines. CLASP's 2019 AC Market Assessment identified four of these (excluding Kolin) as the most popular brands sold in the Philippines, representing nearly half of total market share (44%).⁷

52% of respondents **considered affordability or cost** when they bought their last AC and 33% **considered energy savings** (Figure 15). Affordability refers to the purchase price rather than the lifetime cost of the AC, which also includes operational costs. Some affordable AC units may not be cost-effective to operate. The energy efficiency consideration is consistent with AC ownership findings that 34% of respondents own at least one inverter AC unit. 19% of respondents considered a salesperson's recommendation, indicating it is important for salespeople to be able to explain the energy label and energy efficiency concepts more broadly to consumers

FIGURE 14: WHEN CONSUMERS LAST PURCHASED AN AIR CONDITIONER & BRANDS PURCHASED

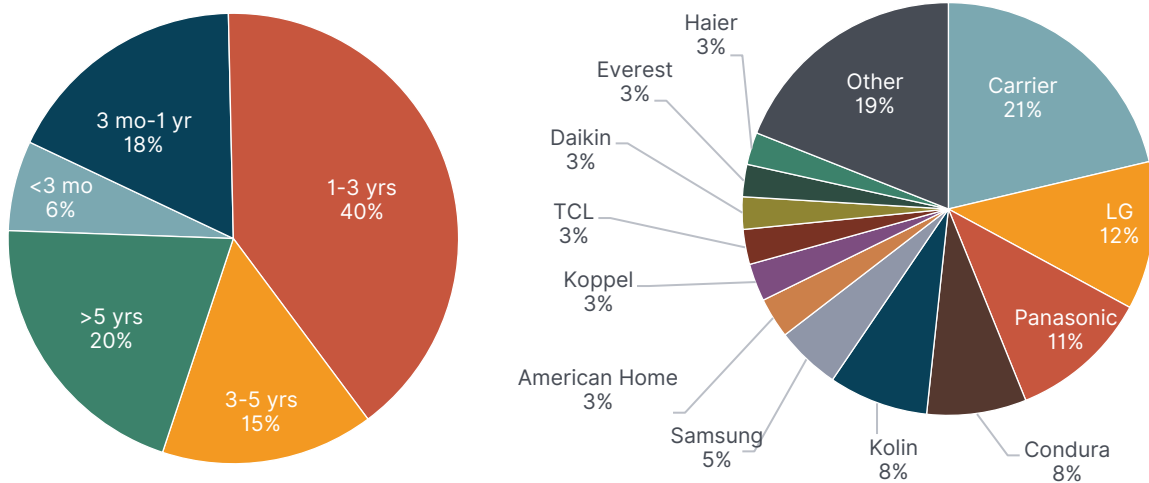
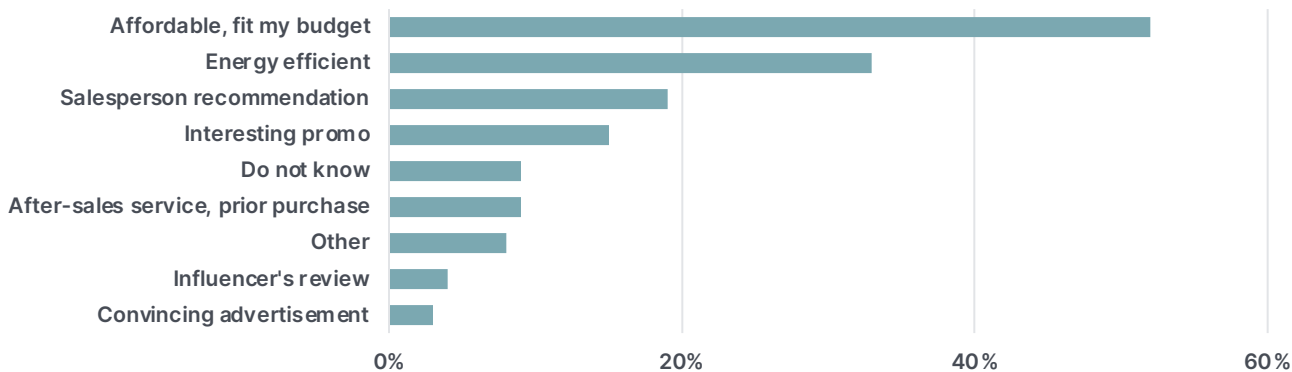


FIGURE 15: CONSUMER CONSIDERATIONS WHEN THEY PURCHASED LAST AC



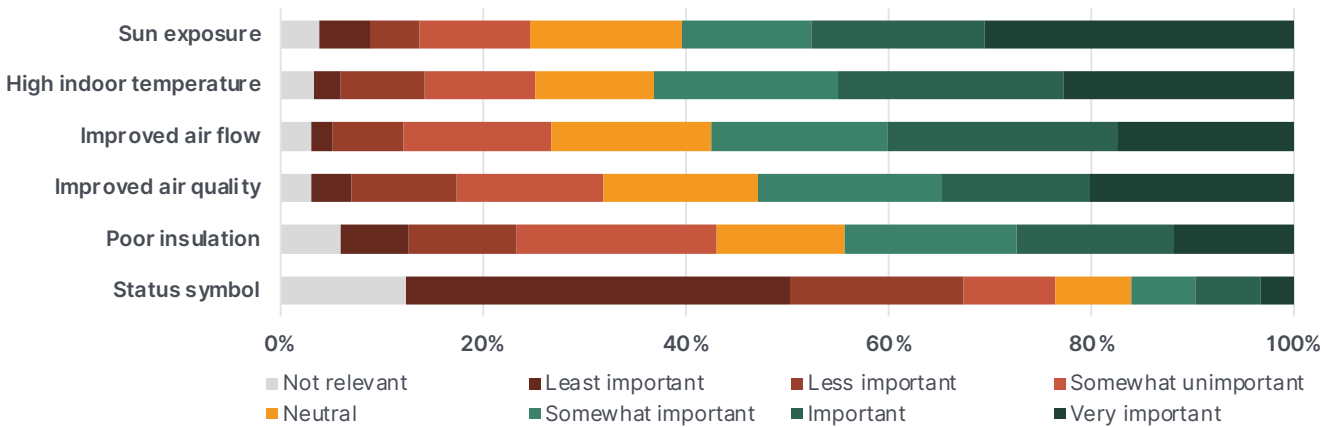
i. FGD with PAIA and manufacturers.

FACTORS INFLUENCING AC PURCHASES

Most respondents identified **mother, father, both parents, spouse, or self as the decision makers for appliance purchases**. On average, respondents who made decisions themselves or with their spouses were 38 compared to 33.5 for those who indicated that parents are responsible for making appliance purchases. **Hot weather drives consumers to buy ACs in the Philippines,**

which has an annual mean temperature of 26.2 °C (79.2 °F).ⁱ The most common motivations for AC purchases are sunny conditions and improving indoor temperature and air flow (Figure 16). Men were more likely to cite improvement in air flow compared to women. Interestingly, AC as a status symbol is not a driving factor for most consumers, showing that consumers do not associate owning ACs with having high social standing.

FIGURE 16: FACTORS THAT MOTIVATE CONSUMERS TO PURCHASE AC



In general, **consumers prioritize efficiency (86%), durability (85%), and good value for money (83%) as very important or important** when buying ACs (Figure 17). More respondents considered energy efficiency as *important* at the time of the survey (86%) than when they purchased their last AC unit (33%) (Figure 17). 78% considered reduction of the electricity bill as *very important* or *important*. With increasing income, fewer respondents took into consideration *good value for money*, but more prioritized *durability* and *long warranty*. This shows that less financially flexible households focus on ACs that cost less.

Fewer respondents from Class D/E consider energy efficiency compared to Class A. **Over 80% of respondents from Classes C and above said they prioritize high efficiency, while only about half of respondents from Class D/E prioritize it.** This could be due to the perception that efficient ACs have a

higher upfront cost. Nearly all respondents from high-income households consider efficiency when buying ACs. The average age of respondents who prioritize efficiency is 34 for both men and women. About 90% of respondents who own their home or live with others prioritize efficiency. Renters prioritize it slightly less, at 79%.

Nearly 70% of interviewed consumers are motivated by discounts and 57% by warranty and free installation (Figure 18). Figure 17 shows similar findings—about 76% of consumers consider a long warranty as *important* or *very important* when purchasing ACs. This indicates that these could be great motivators for purchasing efficient ACs. A discount (one-time price reduction) is attractive to consumers due to a short-term immediate gain, which is easier to recognize compared to long-term benefits like reduced operating costs.

i. <https://www.pagasa.dost.gov.ph/information/climate-philippines#:~:text=Based%20on%20the%20average%20of,mean%20temperature%20of%2028.3oC.>

Respondents value offers and promotions similarly across gender and education level. About twice as many post-graduates value free delivery service compared to other education levels.

Respondents in Classes C and above value the promotions similarly, while respondents in Class D/E value long warranty less and free delivery service more.

FIGURE 17: CONSUMER CONSIDERATIONS WHEN PURCHASING ACS

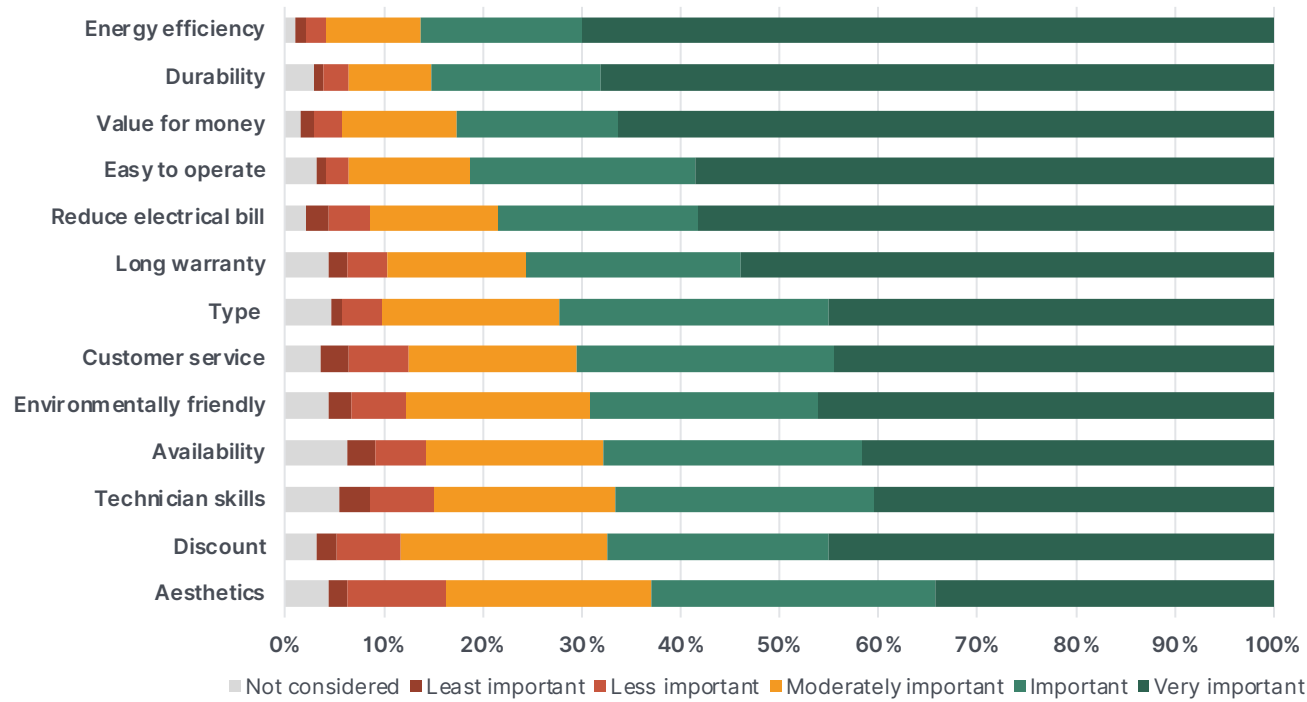
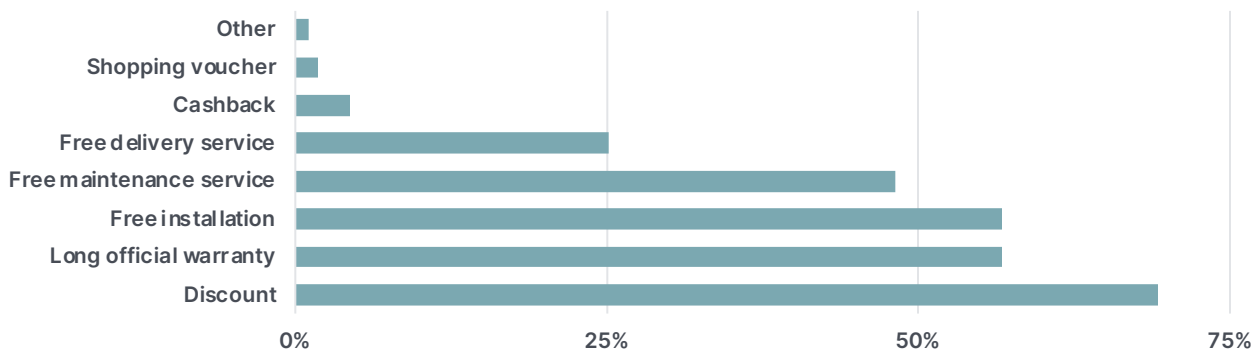


FIGURE 18: OFFERS AND PROMOTIONS THAT MOTIVATES TO BUY CERTAIN ACS



Per retailers, **consumers are mostly concerned with price, energy efficiency, and brand** when purchasing ACs. They also indicated customers were more inclined to pay higher prices for energy-efficient ACs (21 responses), ACs with inverter compressors (19 responses), and their preferred brand (16 responses). They perceive that few consumers care about discounts, which contradicts the consumer responses indicating that discounts are important to nearly 70% of them. The retailers

also responded that environmental friendliness and warranties are not important to consumers (Figure 19), whereas consumers indicated otherwise (Figure 17). From the industry perspective, respondents think that consumers prioritize energy efficiency, environmental friendliness, and after-sales service and warranty. **The highest priority factor reported across all three groups is energy efficiency.**

FIGURE 19: RETAILER PERCEPTION ON WHAT IS IMPORTANT TO CONSUMER WHEN PURCHASING AC

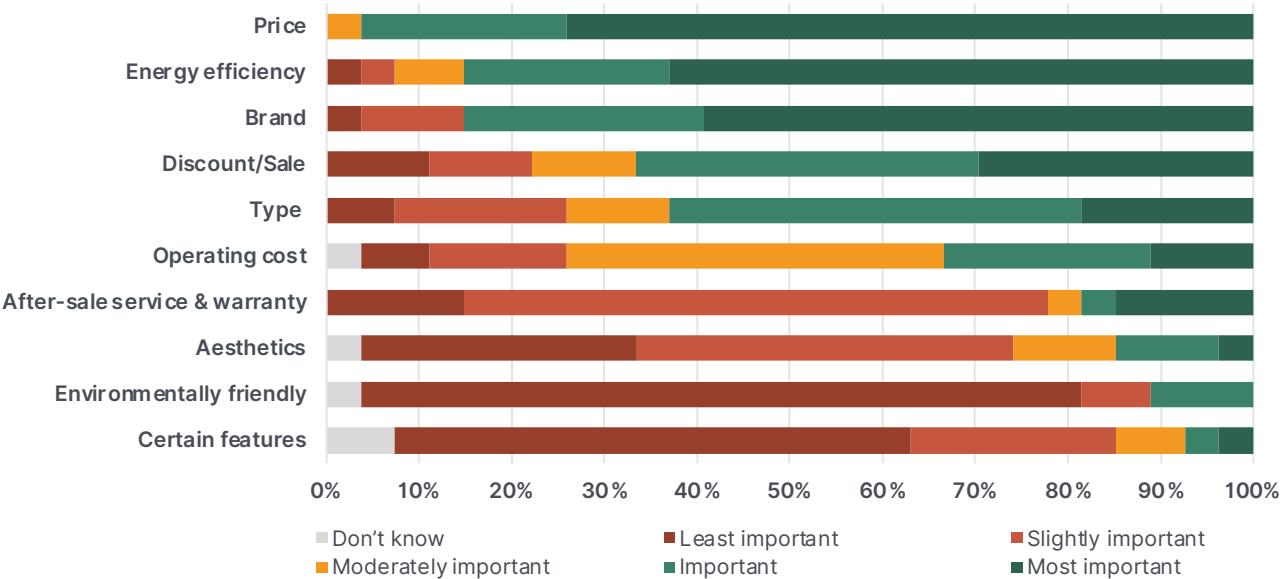
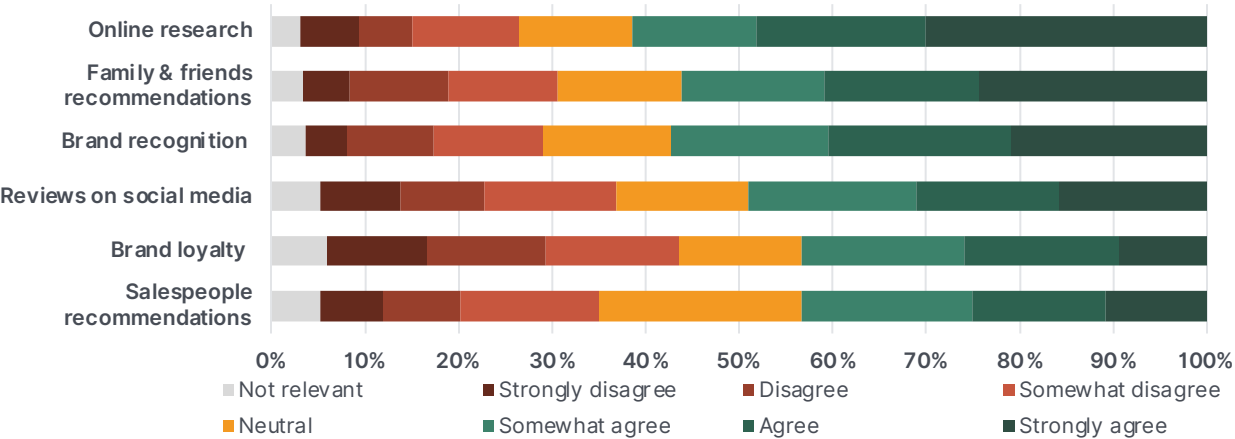


Figure 20 shows that **the most popular means to inform AC purchases are online research, recommendations from friends, relatives, and others, and buying only known brand appliances.** While respondents prioritize online research, the use of social media groups to inform AC purchase is not as common. Women were more likely to use social media compared to men. Salespeople recommendation is important only for some, which is in line with only 19% of respondents who considered them when they purchased their last AC (Figure 20). Middle-income respondents (Classes B and C) are more likely to follow salesperson recommendations compared to high- and low-income respondents. However, when asked whether respondents would follow the recommendations of the salespeople, 46% said *likely* or *very likely* and 43% *fairly likely*,

which contradicts the above results. The same response pattern is seen among groups based on income, gender, and education level. Respondents valued brand loyalty least.

Consumers identified high price (64%), lack of awareness (29%), and limited product availability (20%) as the main reasons preventing them from buying efficient ACs. Other responses included poor customer service and power interruption. Retailers and industry see similar challenges to pushing the market towards more efficient ACs: high price (60%), lack of consumer awareness (33%), and product unavailability (7%). The industry representatives indicated that high material costs inhibit the manufacturing and import of more energy-efficient ACs.

FIGURE 20: CHANNELS TO INFORM AC PURCHASES



ENERGY EFFICIENCY COMPREHENSION

Respondents indicated **low energy use (57%)** as the most important aspect of energy-efficient ACs, followed by **more savings (20%)**. Few respondents indicated other aspects, such as ability to cool the room, durability, pollution reduction, and noise. Sample responses from the open-ended question included:

- **Awareness creation:** guide consumer to be a smart buyer and in choosing products, comparison, easily informs customers of its value for their money, easy reference
- **Lower energy bill:** save money, cost efficient, cut cost, for consumers to be able to save up more overtime, reduce cost
- **Reduce energy consumption:** conservation, energy saving, eliminate energy waste
- **Quality:** durability and usefulness, shows how good the product is
- **Quality:** durability and usefulness, shows how good the product is

AWARENESS & VALUE OF PELP

We asked respondents about their awareness of the PELP program, which was only recently launched under this branding. More consumers are **aware of the EE&C Act (27%) compared to PELP (20%). Similarly, 74% of retailers are familiar with the EE&C Act, but only 40% with PELP.** All industry respondents are familiar with both, as manufacturers and importers are subject to regulatory requirements.

37% consumer respondents recognized the slogan “Making energy efficiency and conservation a way of life for all Filipinos.” This suggests that there is opportunity for the DOE to increase communications and awareness-raising activities around how PELP can help consumers make smarter, more energy-efficient purchases.

Of consumers who are aware of PELP, **96% (N=77) think that energy labels are an effective way to promote efficient products** and 69% (N=77) that there is sufficient information available about PELP and the new energy label. All industry and retailer respondents who are familiar with the PELP think that energy labels are an effective way to promote efficient products.

The retailers see the function of the labels as:

- Educating consumers about energy cost savings
- Communicating the benefits
- Helping to sell ACs to consumers
- Helping consumers identify efficient AC models
- Informing consumers about energy efficiency feature (e.g., inverter compressor) of appliance
- Labels correlate with model value
- Serve as a simple guideline for consumers to select most appropriate AC

Less than half of retailers (5, N=11) agree that consumers are aware of the PELP. Nearly all (9, N=11) retailers, as well as all 3 industry representatives, think that the DOE could conduct more awareness

initiatives to inform consumers about the PELP and the new star-rating label.

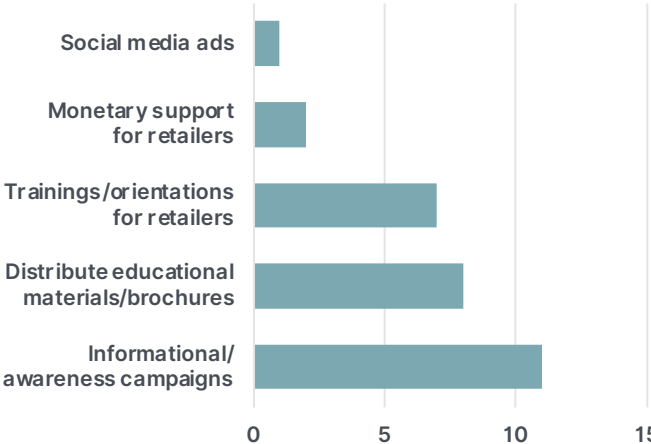
To improve awareness of the PELP, information awareness campaigns received the most support from the retailers and industry, followed by trainings and distribution of educational materials for retailers. Other suggestions include providing a quick reference guide, conducting TV and social media campaigns, and providing estimated daily energy consumption on the label. The industry representatives identified opportunity for the DOE to maximize use of social media for promotional activities, citing DTI's efforts as an example of a successful social media-centered communication strategy and a potential partner.

Department of Trade and Industry (DTI) Social Media Campaign

As part of its mandate to ensure product safety, DTI recently implemented a social media-based advocacy campaign, #consumerPH, to heighten consumer awareness and promote their consumer protection programs and services. Hashtags for each day of the week (e.g., #ThursdayTips, #FridayFigures, etc.) and consumer testimonial posts across Facebook, Twitter, Instagram, and YouTube were used to educate their followers and encourage responsible consumer behavior.

Sources: Focus Group with DTI, September 2022; DTI, 2017, [DTI launches #consumerPH](#)

FIGURE 22: RETAILER & INDUSTRY SUPPORT FOR PELP PUBLIC AWARENESS STRATEGIES



PELP PRODUCT REGISTRATION

All industry respondents indicated that they are familiar with the energy label and that the labeling requirements are clear. All have at least a few products registered in the PELP online system.

One survey respondent and one FGD participant indicated that the current PELP online registration process is time-consuming because of having to register the company and products separately, as well as pay separate fees for product registration and star-rating energy label issuance. They suggested having only one registration step and payment per applicant. It was also noted that registration for every product revision is costly and resource intensive.

REGULATING ADDITIONAL PRODUCTS

All three groups were asked what other products they would like to see regulated under PELP. Recommended products included washing machines (64%), rice cookers (29%), and electric fans (28%). Less popular products included electric ovens, microwaves, irons, vacuum cleaners, monitor-type displays, and air fryers.

Promotion Of PELP Label/ Awareness Creation

RETAILERS & INDUSTRY

To sell energy-efficient ACs, **retailers engage salespeople to promote them (85%), use brand brochures (56%), and signage such as posters and streamers (37%)**. Only one store uses social media to promote efficient ACs. Reliance on salespeople stresses the importance of providing proper training to sales personnel to ensure they can effectively inform consumers about energy-efficient products and energy labels. Industry reported that they share the brochures about their products with the retailers and feature the star-rating label next to products on their websites. One industry respondent also conducts IEC campaigns and newspaper print ads.

About 89% of retailers and industry use energy labels in their advertisements and promotions at least sometimes.

Industry sets up mechanisms to ensure that all products are registered under PELP and that their star-rating energy labels are correctly applied, including monitoring that their marketing teams correctly place the labels on product webpages.

To promote their high-efficiency ACs and influence consumer purchasing, industry respondents indicated that they offer free installation, discounts, shopping vouchers, and long warranties. Only one industry respondent focuses its product development and marketing strategies on young professionals, while others do not have targeted promotion strategies.

TRAINING

81% of retailer respondents were aware of PELP labeling requirements and 73% indicated that at least half of their salespeople could explain the star-rating energy label to consumers. 37% stated that they received training or information about PELP from the DOE at least annually or when there was revision of the label, while all industry respondents stated they received DOE training in the past. To promote energy label awareness among their employees, 73% of retailers conduct orientation programs for new hires, 47% conduct occasional in-house training.

Creating energy label awareness among retail employees is important to 93% of retailers. The retailers indicated that the most helpful support for internal awareness creation around the energy label is receiving educational materials from the DOE (80%); 53% are interested in training and 27% in monetary support.

One industry respondent indicated that they do not make an effort to enhance employee awareness of energy labels, while the other two received DOE or third-party trainings. Industry respondents primarily get updates on the PELP and its requirements through workshops, consultations, and similar events. Two respondents also cited the DOE website and social media accounts, as well as emails from the DOE or industry associations.

Meralco Orange Tag Program (OTP)

Meralco, the largest private sector electric distribution utility company in the Philippines, launched the OTP program to inform consumers about product operating costs to help inform their purchasing decisions. The consumer-focused orange tag provides the cost of operating a certain product for an hour, which is revised annually, which indirectly helps consumers better understand energy efficiency. The estimates are based on the actual power requirement of a product determined via testing. The orange tags complement the PELP energy labels and help validate their efficiency claims. The AC industry and retailers participate in the OTP program as they see its benefits and use it as an additional marketing material to promote energy-efficient products. The tag is highly visible to the consumer and can be applied to a wider range of electric products as compared to the PELP.

The challenge is that orange tag can only be applied to products within areas served by Meralco: Metro Manila and the provinces of Rizal, Cavite, and Bulacan; and parts of the provinces of Pampanga, Batangas, Laguna, and Quezon. Several manufacturers/importers requested to display the orange tag on products in other areas but permission from the distribution utilities serving the areas is required due to the differences in electricity rates, which risks potential inaccuracy of the orange tags.

The recently revised orange tag includes a QR code that takes consumers to a site with additional details about the product model. There are also plans for the OTP to form partnerships with retailers to promote the orange tag by means of their salespeople and customer brochures.

Source: Focus Group with Meralco, September 2022



New Star-Rating Label

CONSUMER AWARENESS

Since the new star-rating label becomes mandatory in January 2023, at the time of surveying, both the old and new label were present in the market. Considering only 24% of consumers (Figure 18) bought an AC within the timeframe the new label was introduced (i.e., the last year), it is not surprising that most (79%) had not seen the star-rating label yet (Figure 24) compared to the few respondents (13%) who had not seen the old yellow label before.

Of those who had seen them, most knew about the labels from a retailer visit (62% old, 54% new), followed by social media/the internet (13% old, 18% new), word of mouth (9% old, 11% new), and TV (8% old, 7% new) as shown in Figure 25. It is unclear whether low rates of recognition from forums and events, radio, and newspapers are due to their relative ineffectiveness in educating consumers, low investment in these approaches, or both. However, this still indicates the increasing importance of

leveraging social media and internet marketing as tools to raise consumer awareness.

FIGURE 23: LAST AC PURCHASE

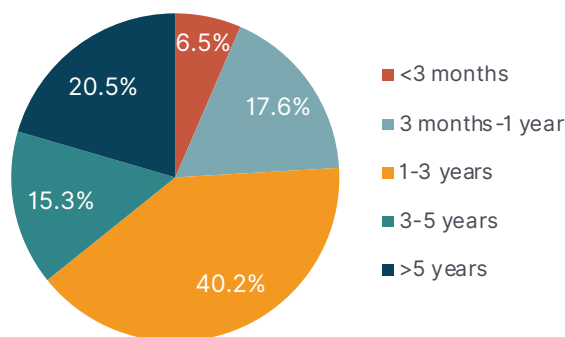


FIGURE 24: CONSUMER RECOGNITION OF OLD/NEW LABELS

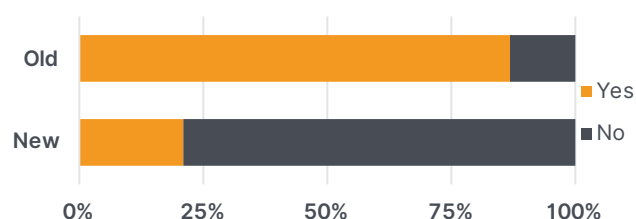
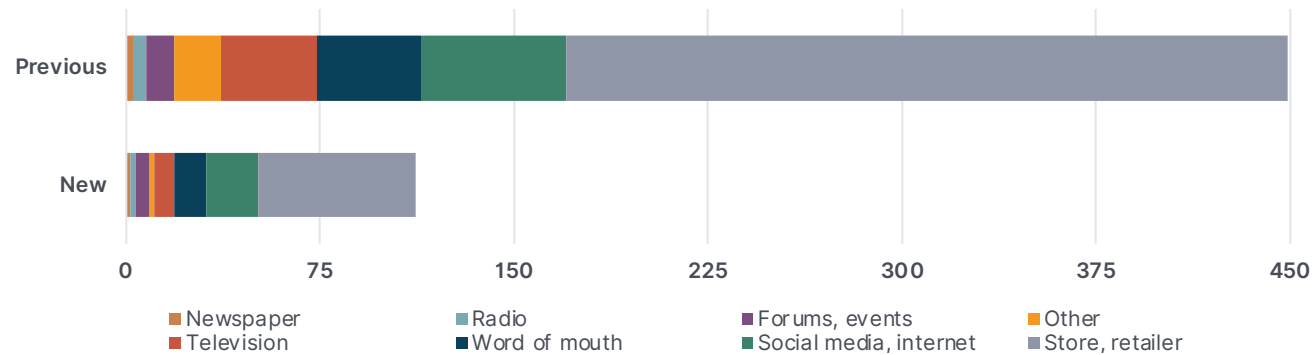


FIGURE 25: HOW CONSUMERS KNOW ABOUT OLD/NEW LABELS



COMPREHENSION & PERCEPTION

Of those who had seen the labels (N=324 old, N=80 new), most (63% old, 69% new) *somewhat* or *strongly agreed* that they **understood the purpose** of the label and few (11% old, 8% new) *somewhat* or

strongly disagreed (Figure 26). Although the sample size is considerably smaller, there appears to be a slight improvement in consumer confidence that they understood the new label.

FIGURE 26: HOW STRONGLY CONSUMERS BELIEVE THEY UNDERSTAND THE PURPOSE OF THE OLD/NEW LABELS

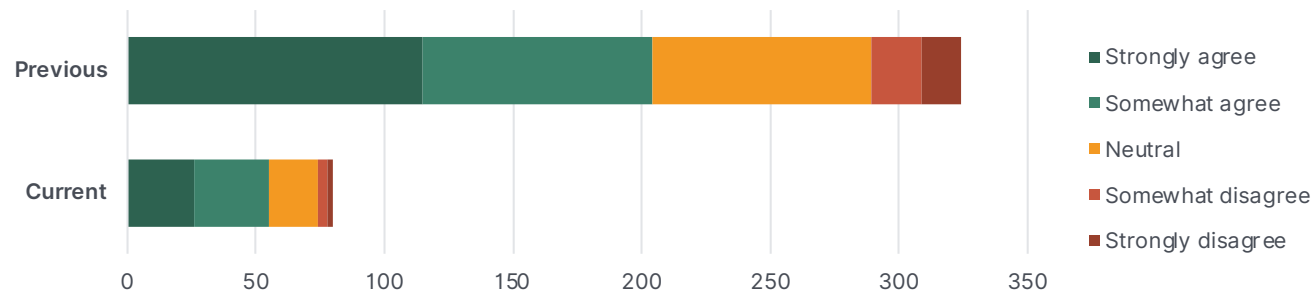
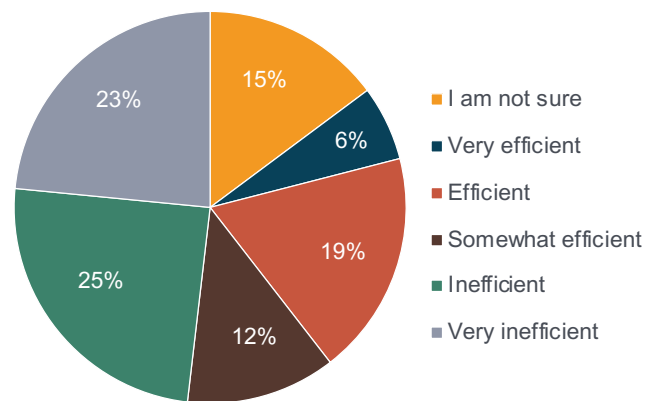


FIGURE 27: HOW EFFICIENT CONSUMERS THINK A PRODUCT LABELED ONE STAR IS



84% of consumers (N=81) accurately indicated that **the stars in the energy efficiency label stand for energy savings** and 9% indicated they *did not know*. However, **when asked what a product labeled one star means**, 25% (N=81) accurately responded that the product is *inefficient*, and 25% inaccurately responded it is *efficient* or *very efficient* (Figure 27). This indicates that consumers could benefit from marketing materials to better understand and interpret the star-rating system.

LABEL CHANGES

85% of consumers (N=81) expressed **interest in the new QR code feature**—40% have used the QR code and found it useful, and 46% have not but would be interested in using it. This indicates that inclusion of

the new feature is generally well-received, although not yet widely utilized.

Overall, 82% of consumers (N=81) *strongly agreed* (27%) or *agreed* (54%) that the **star-rating energy label is more effective** in promoting more efficient ACs than the old yellow energy label. All retailers (N=15) *strongly agreed* (67%) or *agreed* (33%) with the same. 91% of consumers who had already seen the star-rating label (N=79) responded they are **very likely or likely to consider the energy star-rating** when deciding which AC to buy, compared to 75% of those who saw the star-rating label for the

first time during the survey (N=305). Respondents with post-graduate degrees were more likely to consider the star-rating.

Neither consumers nor retailers **identified any major areas of improvement** for the new label. Consumers (N=79) responded most strongly (10% *considerable* or *extensive* need for improvement) regarding the attractiveness of the label design (Figure 28). Retailers (N=24) responded most strongly (2 indicated *extensive* need for improvement) regarding the completeness of the information on the label (Figure 29).

FIGURE 28: WHERE CONSUMERS THINK THE NEW LABEL NEEDS IMPROVEMENTS

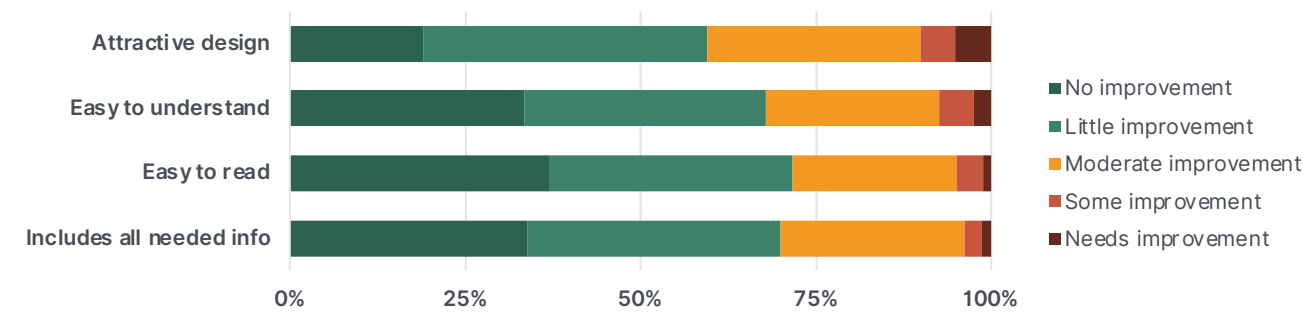
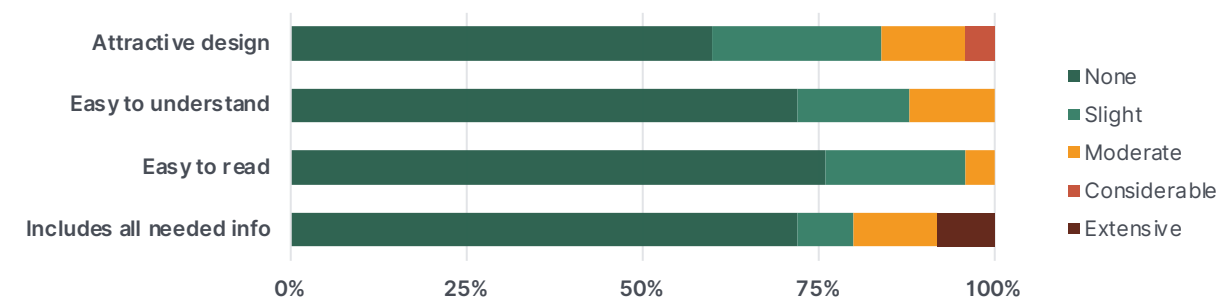


FIGURE 29: WHERE RETAILERS THINK THE NEW LABEL NEEDS IMPROVEMENTS



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Best Practices: Labeling Programs

As of 2022, approximately 100 economies around the world have introduced energy labeling policy for ACs, showcasing a wide array of experiences and best practices for policy design and revision, some of which are discussed in this section.

Impactful Labeling Schemes

REGULAR LABEL REVISIONS

Labeling criteria must keep pace with the evolution of products available in the market and continue to differentiate high efficiency products. If a label is not regularly revised, products will likely cluster in the higher efficiency tiers in just a few years, sometimes sooner. Label tiers need to be re-scaled so that **efficiency tiers accurately represent the current marketed across each tier**. Otherwise, the labels hinder consumers, who use the scales to compare efficiency levels. This can also impact government programs with label requirements.

Developing a roadmap sets a schedule for revising label tiers, which can be done periodically (e.g., India revises every two years) or based on the market (e.g., Japan revises whenever the market reaches a target efficiency level). Announcing anticipated revisions well in advance gives industry the necessary time to plan investments required to produce ACs in the desired tiers. For ACs, the highest level's criteria should be set so that only high-efficiency, inverter AC units can qualify.

Refrigerator Label in Brazil

In Brazil, the comparative label for refrigerators went 15 years without revision, resulting in all refrigerators on the market earning the A class label. Consumers purchased A class refrigerators not realizing they were often highly inefficient. Subsidy and public procurement programs for A-label products were also affected when low-income households could not receive subsidies for refrigerators replacements, as there was no way to differentiate which models would help households reduce their energy bills.

KEY TAKEAWAYS – CASE STUDY 1: INDIA

India has implemented an AC policy roadmap since 2010, driving a 43% improvement in efficiency while also securing the AC industry's support for energy efficiency policies. This roadmap included regularly increasing the stringency of the labeling, which ensured that it kept pace with energy efficiency improvements in the market. Similarly, the announcement of the move to a seasonal metric led to an increase in the market share of inverter ACs even before the seasonal metric became mandatory, as manufacturers shifted their production plans to take advantage of the new metric.

- Announcing policy changes years in advance and increasing label stringency every two years drives an increase in product efficiency while also giving manufacturers sufficient advance notice to adapt to policy changes
- Moving to a seasonal energy efficiency metric promotes the rapid growth of the inverter AC market share
- Creating a database of approved models and requiring manufacturers and importers to report the sales of each model provides market data that informs policy revisions

See Appendix B. Case Study 1: India for more, including an overview of the labeling roadmap implementation.

KEY TAKEAWAYS – CASE STUDY 2: CHINA

In China, the label must have between three to five labeling tiers, with products in each tier in active production. This requirement for multiple tiers, where each account for some market share, allows Chinese policymakers to make market transformation targets based on the tiers.

- Energy labels that clearly differentiate product efficiency can form the basis for effective market transformation programs by allowing consumers to identify and purchase highly efficient products
- Developing a label revision scheme with regular triggers can help ensure labels effectively differentiate products

- Very strict criteria for endorsement labels or other voluntary measures for high efficiency products may result in few products receiving the designation, low consumer awareness, and lack of interest from certification bodies given the small volume of certification business

See Appendix B. Case Study 2: China for more on China's energy labeling program and how it demonstrates the value of labels that differentiate products for promoting market transformation.

High Impact Products

High energy performance standards (HEPS) specify thresholds for the most efficient products on the market. HEPS are voluntary and encourage manufacturers to promote their highest-performing products. Adopting HEPS can incentivize investment in developing higher efficiency products, paving the way for future MEPS.⁸

KEY TAKEAWAYS – CASE STUDY 3: THAILAND

Thailand has had a voluntary energy labeling scheme since 1995, which became the EGAT No. 5 label program. In 2015, it introduced new label levels for inverter AC units based on seasonal energy efficiency ratio (SEER) and in 2017 revised the label levels for fixed-speed units, also based on SEER. The movement to a single test metric significantly increased the share of inverter ACs from 16% in 2013 to 32% in 2018. A 2020 study found that nearly all consumers (94%) would not buy an appliance that does not achieve the No. 5 level and 70% of manufacturers use the higher star-rating label to market their products and to promote their brand.

- Introducing a single metric for all ACs increases market penetration of inverter technologies
- Separate labeling criteria for different technologies allows less efficient, fixed-speed ACs to attain EGAT No. 5, which slows down market transformation

- Changes to how information is presented on a label should be paired with consumer awareness efforts to ensure consumers understand how to interpret the label

See Appendix B. Case Study 3: Thailand for more on the impact of EGAT No. 5, a voluntary labeling scheme, and pushing Thailand's market toward inverter technologies.

Product Prioritization

Policymakers can maximize the impact of their standards and labeling programs by methodically prioritizing products for policy adoption and revision. A prioritization tool can be customized to the priorities (e.g., economic, climate impacts) of a specific agency or for a group of agencies to work on energy efficiency policies in a coordinated manner. The tool can inform the revision schedules in policy roadmaps or be used in the absence of a roadmap for identifying new high-impact products to regulate.

KEY TAKEAWAYS – CASE STUDY 4: BRAZIL

In 2022, CLASP designed a policy prioritization process for 10 productsⁱ in collaboration with the agencies responsible for MEPS and the voluntary endorsement label. Lighting, motors, and refrigerators emerged as the top three priority products for high-impact energy efficiency policy improvements in Brazil. The criteria used to prioritize products were:

- Energy consumption reduction (TWh)
- CO₂ emissions abatement (Mt)
- Life cycle cost savings for individual consumers (BRL)
- Peak demand abatement for electric products (MW)
- Feasibility of policy implementation (scorecards from MME & Procel)

See Appendix B. Case Study 4: Brazil for more, including relevant context and methodology.

i. Residential room ACs, refrigerators, fans, televisions, washing machines, and ovens; commercial refrigeration; industrial motors; and all-purpose distribution transformers and lighting

A solid white vertical bar is positioned on the left side of the slide, extending from the middle of the text area down to the bottom.

Best Practices: Consumer Communications

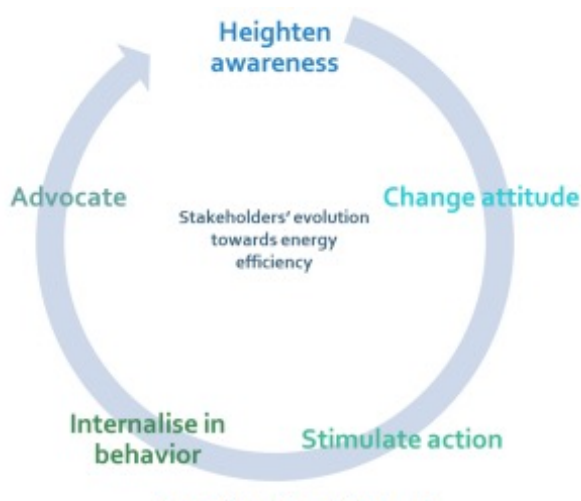
This section is informed by a combination of resources from previous CLASP research.⁹

Influencing Behavior

The success of energy labeling programs hinges on changing consumer behavior—encouraging buyers to choose more energy-efficient options. India's Bureau of Energy Efficiency (BEE) and Edelman published an energy efficiency campaign strategy¹⁰ that included a strategic framework (Figure 30) for achieving behavioral changes by:

*“Guiding consumers along the **evolutionary path** of energy efficiency **in a targeted manner**—from heightening awareness, to changing attitude, to acting on the knowledge to be energy efficient, to internalising these actions as behaviours, and finally **advocating to mobilise a social movement towards energy efficiency.**”*

FIGURE 30: BEE & EDELMAN EVOLUTIONARY FRAMEWORK



Influencing consumer behavior depends on:

- Attitudes & perceptions. Consumers must understand why the energy label is important and why they should care about it. This requires having at least a basic understanding of the how much energy they consume, how they consume it, and the potential impacts of adjusting—or not adjusting—their behavior.
- Consumer values. Consumers may be more

responsive to impacts that are practical (scarce energy resources), external (incentives & penalties, social influence), of self-interest (financial), or altruistic (national economy & energy security, global climate)¹¹. Appeals can be made at the individual, workplace, community, national, and global level.

- Customs & habits. It is crucial to understand what consumers typically use to inform purchasing decisions (online research, recommendations from friends) and why these are preferred over other potential resources (convenience, thoroughness of information, trust of one source over another).
- Accessibility of information. Messages that highlight familiar and salient concepts over technical details resonate better with consumers (e.g., energy bill costs vs. SEER values). Consumer comprehension will also vary by language spoken, education access, and literacy levels.
- Resources. Consumers require the purchasing power to buy new, efficient products, as well as time and energy to engage with educational materials. Availability of resources to access energy label information also varies (e.g., a smartphone is required to scan QR codes, internet is required to search online for more information).
- Ability to take action. Energy labels are most relevant to decision makers looking to purchase a regulated product soon. Calls to action can feel more achievable when framed in terms of small, easy steps consumers can take that add up to a meaningful contribution.

Messaging, Resources, & Graphics

Consumers are often subjected to demands to change their behavior and may experience general fatigue from calls to action. To secure and sustain the attention of consumers, messaging must be carefully crafted and tailored to appeal to different segments of the population.

Generally, effective consumer messaging:

- Is clear, concise, and easy to understand (e.g., avoiding overly technical language)
- Avoids superfluous information (e.g., if consumer research indicates they do not find certain content relevant or useful)
- Maximizes accessibility of information (e.g., providing multi-lingual resources, incorporating pictorial representations, utilizing familiar spokespeople)
- Makes change feel achievable and impactful (e.g., by highlighting actionable and ideally small, easy steps consumers can take that add up to a meaningful contribution)

Although traditional marketing tactics—which include direct engagement (canvassing, events, exhibitions) and print media (flyers, brochures, mailers)—are still used, digital campaigns can be more cost effective because of their wide reach. Digital campaigns also enable energy label stakeholders to connect directly with consumers to answer questions, dispel myths, and direct them to additional information.

Messaging can be conveyed visually using digital graphics (infographics, social media posts, guidelines) and video and audio (online ads, linkable PSAs). These can be supplemented with traditional mass media approaches like press engagement, TV commercials, and radio ads.

FIGURE 31: PREVIOUS YELLOW LABEL GUIDE

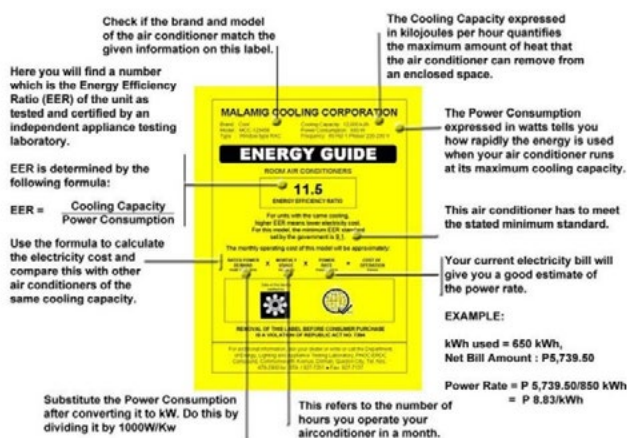


FIGURE 32: NEW STAR-RATING LABEL GUIDE

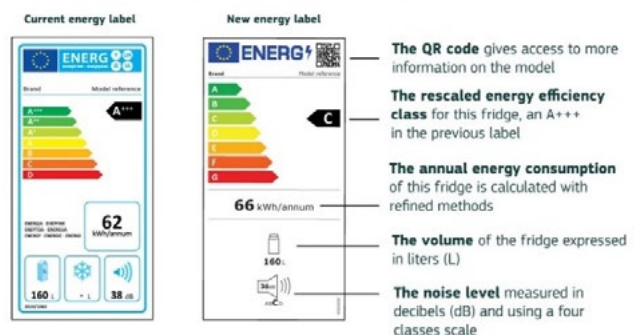


Resources and graphics may include:

- **Annotated labels**, which range from identifying components on the label (Figure 31) to providing a brief description of key components (see Case Study 5: Kenya) to providing a brief description of all components (Figure 32)
- To ensure information is accessible to consumers and not overwhelming, it is helpful to highlight key information and avoid overly technical language
- **Videos explaining what the label is and how to read it**, (e.g., Omaha Public Power District's 2m 15s [video on the US EnergyGuide label](#))¹²
- **Pictorial representations** to make information more understandable using visual cues instead of language (e.g., the EU label)
- **Graphics comparing a new label to the previous**, such as when a label is redesigned or rescaled (Figure 33)

FIGURE 33: RESCALED EU LABEL INFOGRAPHIC

How to recognise a rescaled product ?



The energy labels for a fridge without freezer

Some energy labeling programs use graphics to attempt a more personal and approachable appeal to consumers. The Electricity Generating Authority of Thailand (EGAT) has a mascot for their agency, as well as a concise and consumer-oriented slogan (Figure 34). The CARICOM Energy Efficiency Label also has a mascot, “Q-Point,” who debuted in a one-minute [public service announcement](#) and jingle about the pilot regional energy labeling scheme (Figure 35). In the Kenya Energy Label campaign, ads featuring animated characters (a man and a woman) with messaging on cost savings were most successful (Figure 36).

FIGURE 34: EGAT MASCOT & SLOGAN



FIGURE 35: CARICOM ENERGY EFFICIENCY LABEL PUBLIC SERVICE ANNOUNCEMENT



FIGURE 36: KENYA ENERGY LABEL TWEET



Digital Platforms

Online messaging can intervene in consumer decision making at the time consumers are looking to purchase (e.g., targeted Google ads) or for consideration at some point in the future (e.g., social media posts). GWI's online research in the Philippines indicates that internet users aged 16-64 spend an average of 4 hours 10 minutes per day on social media (Figure 37).¹³ GWI identified the top ten most popular social media platforms in the Philippines as Facebook Messenger, Facebook, YouTube,

Instagram, Twitter, Viber, LinkedIn, Pinterest, Snapchat, and WhatsApp.

Brand interactions on messaging services (e.g., Viber, WhatsApp) is a relatively nascent approach that requires further research. Per GWI's global research, users identify following/finding information about products and brands as one of the top three reasons they use Instagram, Twitter, LinkedIn, and Pinterest (Figure 38).¹⁴

FIGURE 37: GWI – AVERAGE TIME PHILIPPINES INTERNET USERS SPENT PER DAY ON MEDIA TYPES

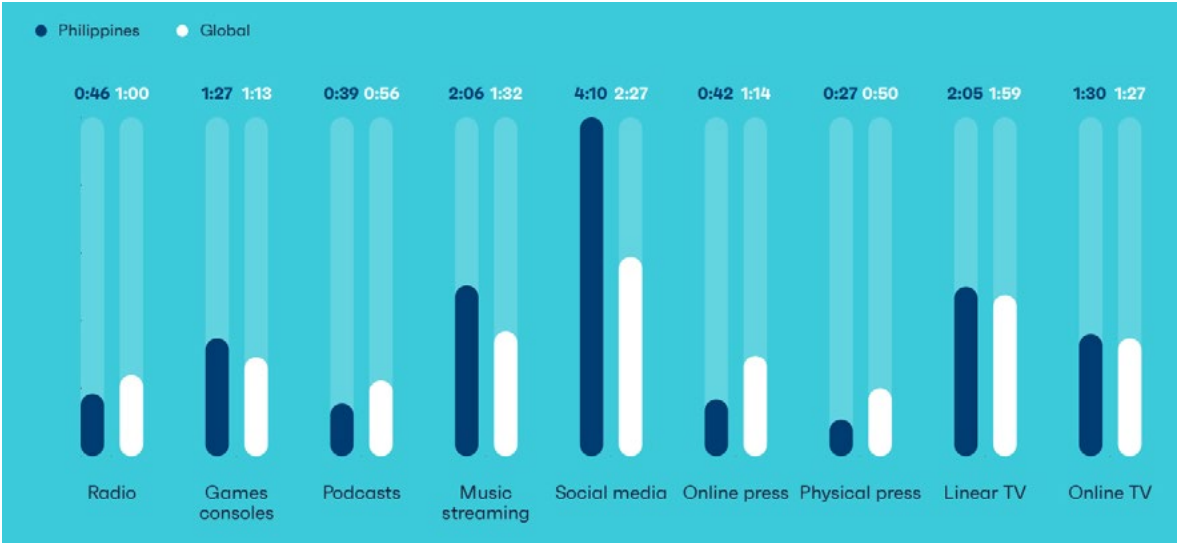
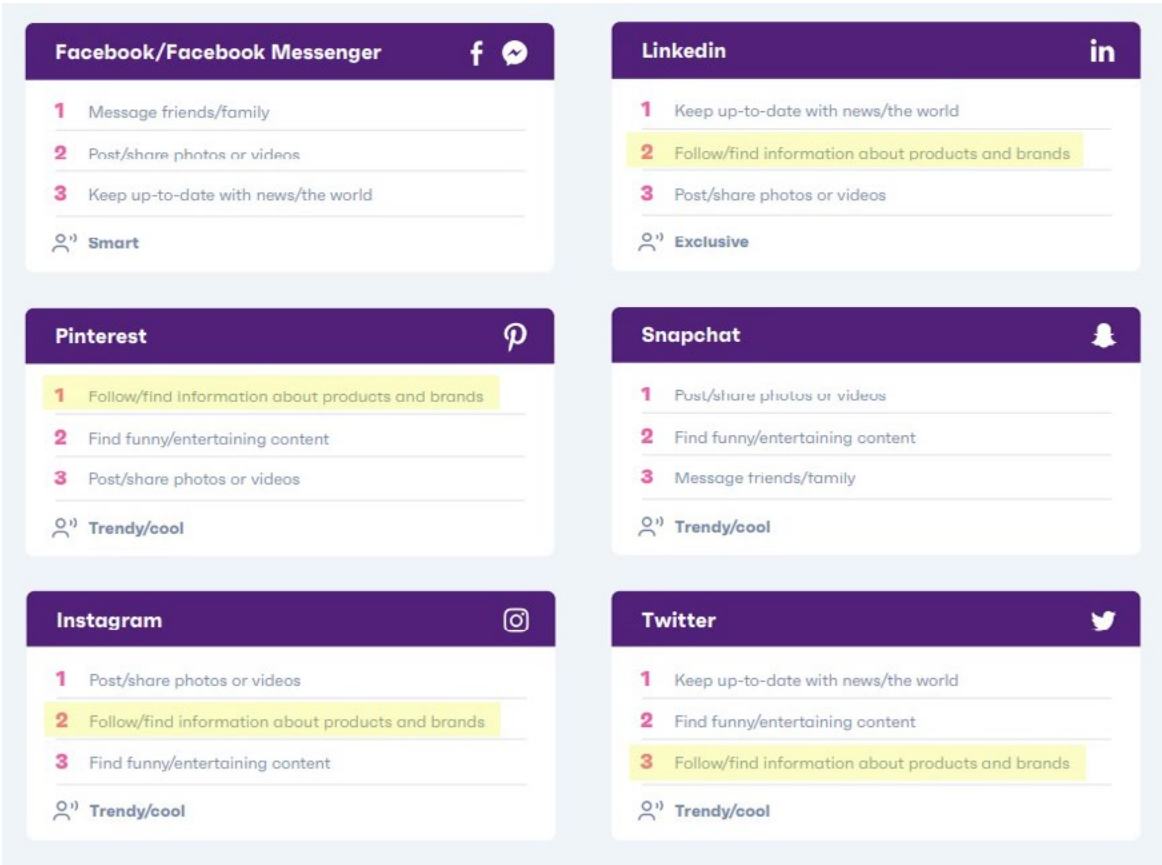


FIGURE 38: GWI CONSUMER RESEARCH ON TOP 3 REASONS FOR USING PLATFORMSⁱ



Social media platforms enable users to employ different ad types, focusing on ‘engagements’ such as sending a direct message to the account of the energy label or regulator or commenting on a post, encouraging ‘page likes’ to retain long-term followers, or pushing ‘reach’ so that ads are shown to as many eyes as possible. The ad types perform differently depending on the market; it is best practice to pilot all types to identify the best performing ads and posts in terms of reach and conversion rates (e.g., percentage of consumers who click on an ad or like a page).

i. Excludes Reddit and TikTok, which were not top ten social media platforms in the Philippines.

KEY TAKEAWAYS – CASE STUDY 5: KENYA

In late 2020, CLASP and the Energy and Petroleum Regulatory Authority (EPRA) launched a digital campaign to raise awareness about the Kenya Energy Label. The campaign ran for 4 months and reached more than 2.5 million Kenyan consumers. CLASP conducted a baseline survey, which was used to design the campaign, and endline survey to assess success. Key recommendations from the baseline survey included:

- Advertise the campaign on the platforms consumers use to research products, such as online ads through Google and social media
- Incorporate messaging about:
- Long-term cost-savings of higher-efficiency products to show consumers the benefits despite a higher up-front cost
- Energy-savings—including energy consumption, monthly electricity tokens, and energy savings—to appeal to energy-conscious consumers
- Spreading the information to friends and family to help extend the campaign reach

See Appendix B. Case Study 5: Kenya for more, including campaign materials such as guides and social media posts.



Recommendations

Based on desk research, interviews, and findings from consumer and other stakeholder surveys, this section outlines recommendations for the DOE to accelerate the Philippines’ market towards more energy-efficient ACs and other products. The recommendations follow three objectives, bearing in mind that the PELP program was launched recently, and the DOE may have already considered some recommendations listed below:

- **Strengthening the PELP, considering the recently launched star-rating label** and new requirements for ACs, refrigerating products, lighting products, and TVs
- **Increasing consumer awareness of energy labels** so they can make better-informed purchasing decisions
- **Promoting a high-efficiency air conditioner market in the Philippines** through engaging with retailers and industry stakeholders

Strengthening Pelp

Considerations and recommendations for the DOE to strengthen and expand the PELP include:

- **Develop a roadmap for label revision**
 - A roadmap ensures that the labeling levels keep pace with the products in the market, continue to differentiate high efficiency products, and encourage consumers to purchase more efficient products.
 - Set triggers to rescale the label tiers frequently based on time (e.g., every 2 years) or the market (e.g., average efficiency of available products)
 - A pre-determined schedule will give industry certainty as to the policy direction and allow them sufficient time to invest in producing ACs in the desired star levels
- **Consider developing a prioritization tool**
 - The tool could be used to identify target products to add to PELP, for policy revision in absence of a label revision roadmap, or for a voluntary HEPS scheme, if the DOE is interested in introducing one
 - Determine priority metrics (e.g., energy consumption reduction, peak demand abatement, CO₂ emissions abatement, life cycle cost savings) for identifying and selecting priority products
- **Consider simplifying the PELP Online Application System process**
 - Explore the feasibility of a one-step application and payment for both product registration and star-rating energy label issuance
- **Partner with the Philippine Statistics Authority’s (PSA) on its Household Energy Consumption Survey (HECS)**
 - Explore using the HECS to collect data more regularly and track changes in consumer understanding, preferences, behavior, and values over time by asking households more about PELP, energy efficiency, and the star-rating energy label

Two stakeholders stated the PELP online registration process is **time-consuming due to separate registration and label issuance processes** and payment for each product model.

Consumer Communications

Considerations and recommendations for the DOE to increase awareness among consumers about PELP, the new energy labels, and the benefits of more efficient products include:

OVERARCHING

- **Conduct a baseline and endline survey for any education and awareness raising efforts**
 - Include the same questions in both surveys to evaluate the impact and reach of IEC efforts using the baseline as a benchmark
 - Include consumer behavior research in the baseline survey to gain further insight into target demographics' existing awareness of the energy label and what motivates them to act, which can be used to refine subsequent messaging

TOOLS & RESOURCES

- **Provide consumers with guidelines and educational resources for understanding the label**
 - Indicate how to interpret the star-rating to prevent potential confusion that a product rated one star is efficient, as observed in the survey
 - Example: The Kenya Energy Label campaign created an annotated label with a clear and concise description of each label element, including what it means, why it is important and relevant to the consumer, and what they can do with that information
 - Utilize existing resources such as Wattmatters to promote label-related educational resources

25% of consumers **inaccurately indicated** that a product with a one-star label means it is **efficient or very efficient**.

- **Consider investing in social media and online ad campaigns to educate consumers**
 - Place online ads where consumers research products, including cross-platform advertising (e.g., Google ads) and on social media. Initial research indicates Instagram, Twitter, LinkedIn, and Pinterest would be social media platforms worth exploring
 - Pilot various messages and graphics via diverse ad types (e.g., focusing on engagements with consumers, page likes for long-term followers, reaching as many eyes as possible) to identify the best performing ads and posts in terms of reach and conversion rates
 - Include messaging about the utility of the label directly on social media so users receive all critical information without needing to click through to another page
 - Conduct social media advertising across a range of platforms considering different age and gender demographics likely prefer different platforms (e.g., in the Kenya Energy Label study, Facebook was more popular with men and Instagram with women)
 - Partner with stakeholders with larger social media followings to reach as many consumers as possible
 - Encourage press coverage of the digital campaign to target consumers who are more responsive to traditional media

Second to retailer visits, most consumers knew about both old and new energy labels from **social media or the internet**.

Recommendations for Specific Platforms

Google

- Include keywords related to cost and energy-savings to target consumers who are conscious about their energy expenses
- Google is a strong tool to encourage consumers to click on a website, however, this does not retain long-term consumers for ongoing messaging like social media pages

Twitter

- Tag and encourage partners with more followers to Tweet and share the energy label page to ensure higher exposure
- Tailor ads to specific consumer groups if it appears that they are only showing up for specific demographic categories (e.g., young males on Android devices)

- Leverage consumer interest in QR codes
 - Explore QR codes as an opportunity to share guidance for how to interpret the labels and learn more about energy efficiency, since most consumers expressed interest in the new feature

85% of consumers expressed interest in the **new QR code**

GRAPHICS & MESSAGING

- Design messaging to be clear, concise, and easy to understand for greater impact
 - Explore strategies for making information more accessible, such as incorporating pictorial representations (e.g., the EU label) and providing multilingual resources
 - Contextualize information on energy labels (e.g., “1 kWh is equal to one unit on your energy bill”)
 - Test and adapt messaging through focus group discussions to ensure messaging is understandable, as well as relevant and salient, for target demographics
 - Study what makes messaging more interesting and approachable to Philippine consumers, encouraging them to engage with the content (e.g., the Kenya Energy Label campaign’s animated characters and graphics of appliances)
- **Develop a targeted approach for:**
 - Parents and homeowners aged 35-44, who were the most common demographic of decision-makers
 - Consumers with less education, who were more concerned with energy bill costs, less aware of what EER means, and less aware of the value of the energy label when purchasing ACs
- **Explain how energy efficiency relates to what consumers care about: cost**
 - Highlight reduced operating costs as a long-term benefit of efficient products to help justify potentially higher upfront costs

Parents and homeowners aged **35-44** were most likely to be decision-makers responsible for appliance purchases

Consumers identified **price** as **the most important factor** when buying ACs

Other Stakeholder Communications

Considerations and recommendations for the DOE to engage with retailers and industry stakeholders to promote a high-efficiency air conditioners market in the Philippines include:

- **Regularly provide opportunities to receive constructive feedback**
 - Gain insight into challenges retailers and industry are facing when using the energy label to promote their products to consumers
 - Increase buy-in from retailers/industry on engaging with PELP and advocating for its objectives by ensuring they perceive their feedback as valuable to the DOE
 - Help identify adjustments to be made in future consumer education campaigns
- **Offer more high visibility trainings for retailers/industry to learn about the new star-rating label and communicating the label to consumers**
 - Provide in-person trainings when possible so retailers can directly engage with the DOE staff, either through site visits for larger stores or hosting community trainings

- Supplement in-person engagements with online trainings for retailers with fewer salespeople or who are more geographically isolated, ensuring there is still opportunity to ask questions
 - Publicize these efforts to increase visibility and ensure retailers/industry are aware of them, as over half of surveyed retailers were unaware of education campaign efforts
- 10 out of 27 retailers stated they **receive trainings or information** from the DOE
- **Develop a promotional toolkit with resources for retailers/industry**
 - Provide training, educational, and promotional materials for retailers, manufacturers, and distributors, such as ENERGY STAR's [Products Partner Resources](https://www.energystar.gov/partner_resources/products_partner_resources)ⁱ
 - **Provide retailers with educational materials for:**
 - *Consumers*, since the main way consumers learned about both the previous and new labels was through retailer visits
 - *Their salespeople*, as almost half of retailers did not believe all their salespeople could explain what the star-rating label means to consumers
 - *Their marketing materials*, as retailers indicated they sell the most ACs during sales and promotions, but a third only sometimes or never cite the energy labels in their ads

9 out of 15 retailers believed that **all** their salespeople **can explain the new star-rating label** to consumers

33% of retailers **only sometimes** or **never** cite the energy labels in their advertisements
 - **Consider partnering with the Department of Trade and Industry (DTI)**
 - Leverage DTI's strong social media presence and experience with IEC campaigns to increase visibility of PELP consumer education efforts
 - Capitalize on DTI's relationship with industry to better inform future industry engagement efforts

i. Accessible online at: https://www.energystar.gov/partner_resources/products_partner_resources

Appendix A. Detailed Consumer Survey Methodology

Data Collection

Most (86%) consumer and all (27) retailer surveys were administered physically, while all (3) industry surveys were administered online (Table 4).

TABLE 4: SURVEY ADMINISTRATION APPROACHES BY TARGET GROUPS

SURVEY	ONLINE	PHYSICAL
Consumers	52 (14%)	333 (86%)
Retailers	0 (0%)	27 (100%)
AC Industry	3 (100%)	0 (0%)

Consumer Survey Sample

GEOGRAPHY

As of 30 September 2022, the Philippines is divided into 17 regions, 82 provinces, and 147 cities.ⁱ Cities are divided into three categories:

- **33 Highly Urbanized Cities (HUCs):** Minimum population of 200,000 and annual income of at least 50 million pesos
- **5 Independent Component Cities (ICCs):** Not under a province's jurisdiction but not considered highly urbanized
- **109 Component Cities (CC):** Under a province's jurisdiction

Target and actual number of respondents are detailed by area type, region, and location in Table 5 and summarized by area type in Table 6.

TABLE 5: TARGET CONSUMER RESPONDENTS – GEOGRAPHY

AREA TYPE	REGION ⁱⁱ	LOCATION	TARGET	ACTUAL
HUC (DTI, 2021)	CAR	1. Baguio City	5	0
	Region III	2. Angeles City	5	8
	Region III	3. Olongapo City	5	5
	NCR	4. Caloocan City	5	0
	NCR	5. Las Pinas City	5	0
	NCR	6. Makati City	5	9
	NCR	7. Malabon City	5	0
	NCR	8. Mandaluyong City	5	9
	NCR	9. Manila City	10	19
	NCR	10. Marikina City	5	6
	NCR	11. Muntinlupa City	5	10

i. Accessed in November 2022 at: <https://psa.gov.ph/classification/psgc/>

ii. NCR refers to the National Capital Region (Metro Manila) and CAR refers to the Cordillera Administrative Region

AREA TYPE	REGION ^{II}	LOCATION	TARGET	ACTUAL
HUC (DTI, 2021)	NCR	12. Navotas City	10	0
	NCR	13. Paranaque City	5	5
	NCR	14. Pasay City	10	8
	NCR	15. Pasig City	5	8
	NCR	16. Quezon City	5	28
	NCR	17. San Juan City	10	3
	NCR	18. Taguig City	10	3
	NCR	19. Valenzuela City	10	0
	Region IV-A	20. Lucena City	5	9
	Region IV-B	21. Puerto Princesa City	5	9
	Region VI	22. Bacolod City	10	5
	Region VI	23. Iloilo City	5	6
	Region VII	24. Cebu City	5	15
	Region VII	25. Lapu-Lapu City	5	9
	Region VII	26. Mandaue City	5	1
	Region VIII	27. Tacloban City	5	15
	Region IX	28. Zamboanga City	5	1
	Region X	29. Cagayan de Oro City	5	26
	Region X	30. Iligan City	5	10
	Region XI	31. Davao City	5	15
	Region XII	32. General Santos City	5	2
	Region XIII	33. Butuan City	15	16
Top 10 component cities (DTI, 2021)	Region III	34. San Fernando City	10	5
	Region IV-A	35. Antipolo City	15	8
	Region IV-A	36. Batangas City	15	7
	Region IV-A	37. Binan City	15	0
	Region IV-A	38. Dasmariñas City	10	5
	Region IV-A	39. Imus City	10	6
	Region IV-B	40. Calapan City	10	0
	Region V	41. Legazpi City	10	4
	Region V	42. Naga City	15	1
	Region XI	43. Tagum City	10	12
Hot areas (PSA, 2021)	Region I	44. Dagupan City	10	4
	Region II	45. Tuguegarao City	10	0
Other	Various	Various	0	74
TOTAL			350	386

TABLE 6: TARGET CONSUMER RESPONDENTS – AREA TYPE

AREA TYPE	TARGET	ACTUAL
HUCs	60.0%	67.4%
Component	34.3%	12.4%
Hot	5.7%	1.0%
Other	0.0%	19.2%

GENDER, AGE, EDUCATION, INCOME

The proportion of respondents by gender, age, education, and income are outlined in Table 7.

TABLE 7: TARGET RESPONDENTS – GENDER, AGE, EDUCATION, INCOME

VARIABLE	TARGET GROUPS	PROPORTIONS
Gender	Male	37.0% (143)
	Female	63.0% (243)
Age range Note: Primary considerations included the standard ages of decision makers in households	Under 15	0.0% (0)
	15 to 24	19.2% (74)
	25 to 34	41.7% (161)
	35 to 44	18.9% (73)
	45 to 54	13.5% (52)
	55 to 64	5.2% (20)
	Above 64	1.6% (6)
Education level	No educational attainment	0.0% (0)
	Elementary school (primary education)	0.5% (2)
	High school (secondary education)	15.0% (58)
	College (tertiary education)	68.9% (266)
	Post-graduate (higher education)	15.5% (60)
Income class (PhP) Note: Class D/E was not surveyed extensively due to low potential to purchase ACs	Class A (Above 150,000)	14.8% (57)
	Class B1 (85,001 - 150,000)	17.1% (66)
	Class B2 (50,001 - 85,000)	29.0% (112)
	Class C (25,000 - 50,000)	33.9% (131)
	Class D/E (Below 25,000)	5.2% (20)

FGDs & KII

Innogy conducted online focus group discussions (FGDs) and a key informant interview (KII) with the stakeholders outlined in Table 8.

TABLE 8: FGDS & KII – ROLES, REPRESENTATIVES, & TOPICS COVERED

GROUP & ROLE	REPRESENTATIVES FROM	TOPICS COVERED
FGD with Department of Energy (DOE) Implementing agency	Energy Utilization Management Bureau (EUMB), Energy Efficiency and Conservation Performance Regulation and Enforcement Division (EPRED), and Energy Research and Testing Laboratory Services (ERTLS)	History and evolution of the PELP, implementation and enforcement of PELP, consumer awareness and education efforts
FGD with Department of Trade and Industry (DTI) Supporting agency	Bureau of Philippine Standards (BPS)	DTI's role in the implementation of the PELP, consumer awareness and education efforts
FGD with Philippine Appliance Industry Association (PAIA) Association of appliance manufacturers and importers	CYA Industries, Inc., Johnson Controls-Hitachi, Koppel, Inc., Mitsubishi Electric/IEE, Panasonic Manufacturing Philippines Corporation, TOSOT Phils Corp.	Status of PELP implementation as perceived by manufacturers and importers, request to support the dissemination of industry survey
KII with Meralco The Philippines' largest electric distribution utility company	Meralco Power Lab - Customer Solutions & Product Management, the division of Meralco responsible for the Orange Tag Program (OTP)	Details about the OTP, transferrable lessons learned from awareness campaigns and strategies for engaging with consumers
(Planned) FGD with Philippine Retailers Association (PRA) Association of over 400 companies in the retail sector	Companies such as retailers, malls, shopping centers, suppliers, distributors, wholesalers, etc.	The FGD was canceled as no members were able to attend, however, PRA disseminated the retailer survey to its members

Appendix B. Case Studies

Case Study 1: India

STRATEGIC AC MARKET TRANSFORMATION WITH REGULAR LABEL REVISION

Evolution of India's AC Labeling Program. BEE launched its labeling program for fixed-speed ACs in 2006 as a voluntary initiative, which became mandatory in 2009. The energy performance thresholds for regulated ACs were revised on a biennial basis from 2010 to 2016 to ensure that each star level contains a meaningful share of the products available on the market. This distribution of products across rating tiers allows consumers to clearly distinguish between the efficiency levels of available ACs.

In 2015, BEE launched a voluntary labeling program for inverter ACs. The program became mandatory for both inverter and fixed-speed ACs in January 2018, shifting to common rating plan and seasonal performance metric - the Indian Seasonal Energy Efficiency Ratio (ISEER).ⁱ

BEE developed distinct star-rating categories for window and split type ACs when they were added to the labeling program. BEE requires registration of products including ACs that are covered under labeling program. The products data in BEE's database is used to inform the star-rating revisions for ACs. The last policy revision occurred in 2021 (Table 9 and Table 10).

FIGURE 39: INDIAN ENERGY LABEL FOR SPLIT ACS

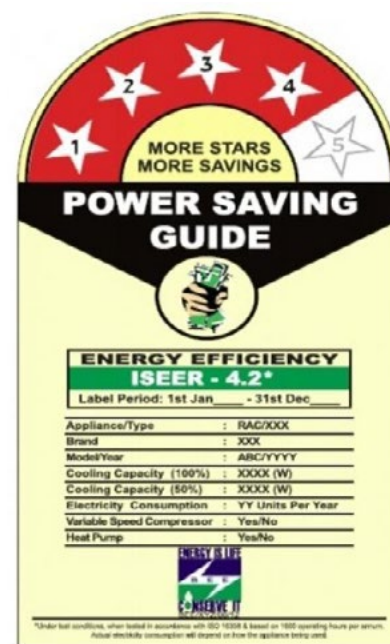


TABLE 9: REVISIONS IN STAR RATING LEVELS FOR WINDOW ACS (FIXED-SPEED AND INVERTER)

STAR LEVEL	JAN 2009-DEC 2013	JAN 2014-JUN 2020	JUL 2021-DEC 2023
-	EER	EER/ISEER*	ISEER
1 Star	2.3	2.5	2.7
2 Star	2.5	2.7	2.9
3 Star	2.7	2.9	3.1
4 Star	2.9	3.1	3.3
5 Star	3.1	3.3	3.5

i. ISEER is the ratio of the total annual amount of heat that the equipment may remove from the indoor air when operated for cooling in active mode to the total annual amount of energy consumed by the equipment during the same period.

TABLE 10: REVISIONS IN STAR RATING LEVELS FOR SPLIT-TYPE ACS (FIXED-SPEED AND INVERTER)

STAR LEVEL	JAN 2009– DEC 2011	JAN 2012– JUN 2013	JUL 2014– DEC 2017	JAN 2018– DEC 2021	JUL 2021– DEC 2023
-	EER	EER	EER	ISEER	ISEER
1 Star	2.3	2.5	2.7	3.1	3.3
2 Star	2.5	2.7	2.9	3.3	3.5
3 Star	2.7	2.9	3.1	3.5	3.8
4 Star	2.9	3.1	3.3	4.0	4.4
5 Star	3.1	3.3	3.5	4.5	5.0

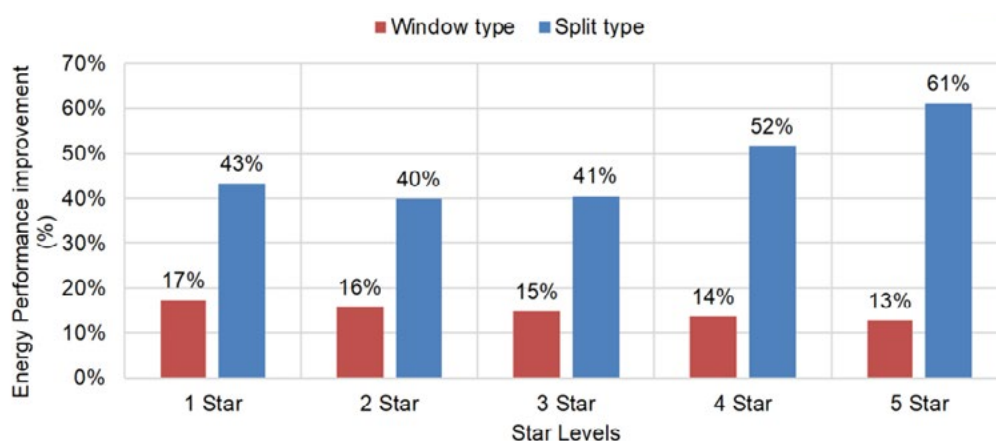
While the revisions for window ACs have been limited due to the technological and size constraints inherent in window ACs, split type ACs have periodically seen more substantial revisions. For example, the 5-star level (most efficient) for split type ACs in 2009 became 3-star in 2015 and 1-star (least efficient) in 2018 per the new rating methodology.

Notably, dramatic changes to the labeling program (e.g., the shift to the ISEER) have been implemented on a voluntary basis before becoming mandatory. This transitional voluntary phase in making these large shifts has allowed manufacturers to adapt to policy changes over time and to understand how they can benefit from the program before being required to participate. For example, the manufacturers can use the label to market more efficient products that are more expensive with higher profit margin.

Impacts of India's AC Labeling Program. Since its inception, the AC labeling program has saved 46 TWh of electricity and avoided 38 million tons of carbon emissions.ⁱⁱ

As shown in Figure 40, between 2009-2021, increases in the energy efficiency requirements for window ACs resulted in marginal efficiency improvements of 17% to the MEPS (1-star) and 13% for the 5-star threshold. For split ACs, increases in the energy efficiency requirements resulted in an overall improvement of 43% to the 1-star (MEPS) and 61% for the 5-star threshold.

FIGURE 40: STAR LEVEL IMPROVEMENT FOR WINDOW AND SPLIT ACS, 2009- 2021

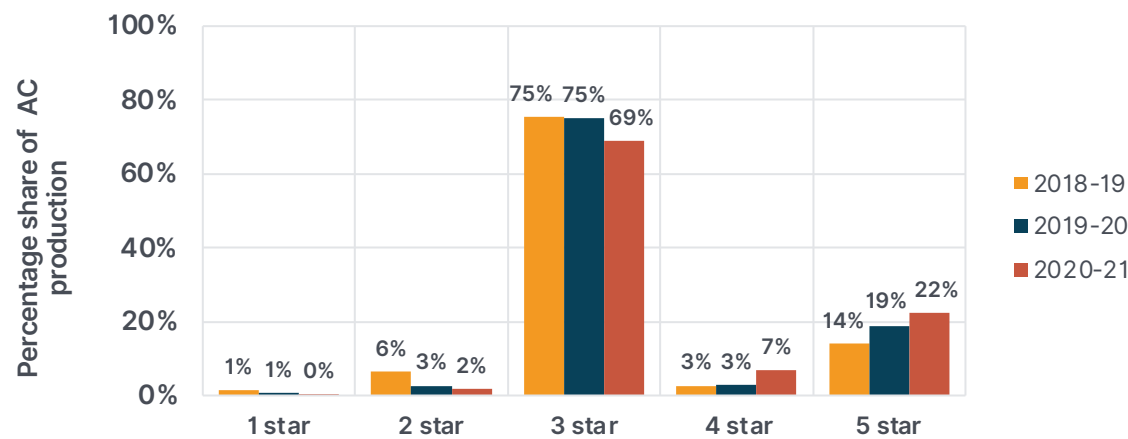


The labeling program drove a dramatic transformation of the Indian split AC market between 2011-2021. In 2011-2012, the market share of 2-star ACs was the highest (39%) followed by 3-star ACs (33%), but in

ii. The data and qualitative information contained in this case study has been gathered by the CLASP India office with support from BEE.

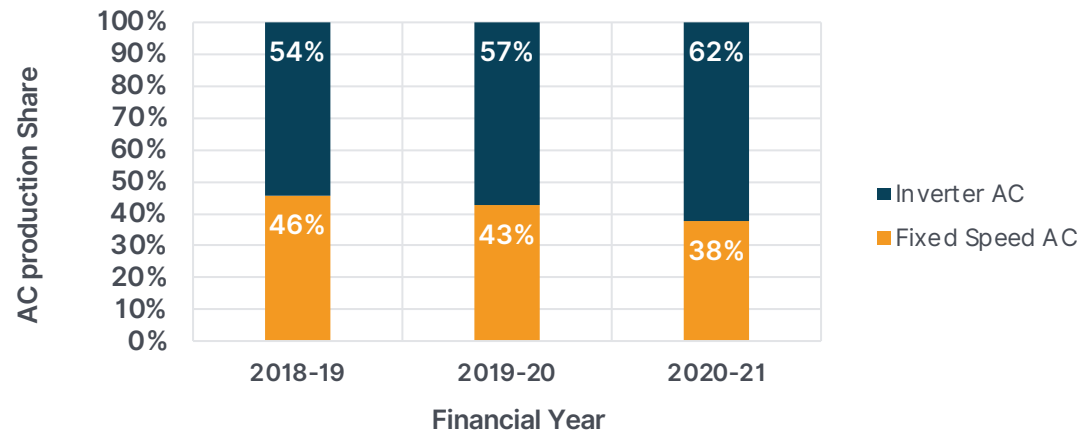
2020-2021, 3-star ACs dominated the market (69%) followed by 5-star ACs (22%). This trend points to a consumer preference for 3-star ACs, possibly due to lower, more affordable upfront purchase costs.

FIGURE 41: INDIAN AC MARKET SHARE OF AC BY STAR LEVELS FOR 2018-2020



Moving to ISEER has also had a tremendous effect on the Indian market. While inverter units only made up 4% of the market in 2015, their share increased to 62% in 2020 and are currently the most popular type of AC in India (Figure 42).¹⁵ The rapid growth in market share was driven by the new test metric and supported by government and bulk procurements that specified requirements for ISEER values that only inverter units could meet.ⁱⁱⁱ

FIGURE 42: AC MARKET SHARE BY FIXED-SPEED VS. INVERTER AC FOR 2018-2020



INDIA ENERGY EFFICIENCY CAMPAIGN MESSAGING

Campaign Messaging. Figure 43 outlines messaging used in an energy efficiency campaign launched by BEE and Edelman for household and industry/institutional consumers based on their responses to the consumer survey they conducted.

iii. Mr. P.K. Mukherjee, interviewed December 2018.

FIGURE 43: CAMPAIGN MESSAGING



Case Study 2: China

VALUE OF LABELS FOR PROMOTING MARKET TRANSFORMATION

China Energy Label Program Evolution. The China National Institute of Standardization (CNIS) has led an energy labeling program since 2005. The comparative China Energy Label (CEL) (Figure 44) provides consumers with relative efficiency ratings as well as cooling seasonal power consumption information. The CEL has three to five levels, with level 1 as the most efficient and levels 3 or 5 as the MEPS, depending on the product. From 2020 to 2022, the label for ACs had 5 levels and in 2022, levels 4 and 5 were removed to set level 3 as the new MEPS in line with the market's transition. The label levels are specified in the same policy as the MEPS and label rescaling occurs as part of the MEPS revision process. Chinese regulations require that each MEPS policy include at least three label levels, with at least some products in each of the labeling levels. Stakeholders, including industry, are engaged in the policy development process for MEPS and labeling. The meetings with leading manufacturers were important as they supported ambitious MEPS. The latest revision of the AC MEPS and label levels occurred in 2019 (Table 11).

TABLE 11: ENERGY LABEL LEVELS FOR AIR CONDITIONERS IN CHINA^{iv}

Table 1 Indicators of energy efficiency grades for heat-pump type room ACs					
Rated cooling capacity (CC) W	Annual performance factor (APF)				
	Energy efficiency grades				
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
CC≤4 500	5.00	4.50	4.00	3.50	3.30
4 500<CC≤7 100	4.50	4.00	3.50	3.30	3.20
7 100<CC≤14 000	4.20	3.70	3.30	3.20	3.10

Table 2 Indicators of EE grades for cooling only type room ACs					
Rated cooling capacity (CC) W	Seasonal energy efficiency ratio (SEER)				
	Energy efficiency grades				
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
CC≤4 500	5.80	5.40	5.00	3.90	3.70
4 500<CC≤7 100	5.50	5.10	4.40	3.80	3.60
7 100<CC≤14 000	5.20	4.70	4.00	3.70	3.50

iv. China SEER is different from an ASEAN CSPF. e.g., China SEER of 5 (the current MEPS) is equivalent to an ASEAN CSPF of 6.1.

seasonal performance metric with a single standard for both inverter and fixed-speed ACs has ensured the phaseout of fixed-speed ACs and the development of more efficient inverter technologies. China also introduced market transformation incentives including a subsidy program for efficient ACs (levels 1 and 2) offered by provincial governments that covered part of the AC purchase price and an “Old for New” program launched by large online retailers who provide a discounted installation fee when consumers return old appliances.

Digital Label. In 2016, China launched a fully digitized CEL that includes a new QR code and accompanying mobile application. The updated CEL offers a consumer platform, accessed by the QR code, with the same energy efficiency and consumption grades from the old label and new information on using the product, repairs and replacement, recycling options, seasonal energy consumption, and updates on government policy and testing data. Some manufacturers have included their products’ estimated electricity costs, and CNIS is currently exploring adding verified energy consumption and cost information to the label. However, some retailers have been known to remove the QR codes (i.e., scratch them off the label or blur them on digital labels), as they believe they provide consumers with too much information and can be confusing.

Endorsement Label. There is also an energy efficiency endorsement label (Figure 45) for level 1 and 2 products, which is a requirement for public procurement. However, the label is uncommon as it can be regarded as duplicative of the CEL. There are currently plans to merge the endorsement label with several other labels to create a single “Green Product Label” that will include other requirements (e.g., refrigerants).

FIGURE 44: CHINA ENERGY LABEL



FIGURE 45: ENERGY CONSERVATION CERTIFICATION LABEL



These labels provide the basis for China’s market transformation mentioned in the Five-Year Plans. In the most recent Five-Year Plan, which ran from 2016-2020, the target for ACs was to increase market share of level 1 and 2 products from 22.6% in 2015 to 50% in 2020.¹⁶ These targets are currently evaluated against the registry of products available for sale on the market. However, the Chinese Central Government is also improving its data collection efforts to ensure that these targets are evaluated against robust, sales-weighted data that accurately reflects the status of the market. This effort began by requiring that manufacturers provide sales data, though it is possible that retailers will be required to provide sales data per model as well.

Case Study 3: Thailand

VOLUNTARY LABELING FOR HIGH-PERFORMING ACS

Labeling Program Evolution. Thailand has maintained an energy labeling program for ACs since 1995. The voluntary comparative label, implemented by the Electricity Generating Authority of Thailand (EGAT), has five levels with level 1 as the least and level 5 (EGAT No. 5) as the most efficient. Government procurement often requires that products have the EGAT No. 5 label. The label is well-recognized by Thai consumers and most AC units sold on the Thai market are labeled EGAT No. 5.¹⁷ Because the label is voluntary, manufacturers choose to only label their most efficient products.

The label levels have been revised several times since the program's inception. All AC units had their efficiency measured by EER until 2015, when Thailand began to harmonize its labeling tiers with the ASEAN MEPS metric^v by introducing new label levels for inverter AC units based on a similarly seasonal metric, seasonal energy efficiency ratio (SEER). In 2017, Thailand revised label levels for fixed-speed units, also based on SEER. The label levels for both types of ACs are shown in Table 12.¹⁸

TABLE 12: SEER LEVELS FOR THAI EGAT NO. 5 LABEL

CATEGORY	CAPACITY	INVERTER SEER (BTU/HR/W)	FIXED SPEED SEER (BTU/HR/W)
Level 5	≤ 8 kW	≥ 15.00	≥ 12.85
	8 kW – 12 kW	≥ 14.00	≥ 12.40
Level 4	≤ 8 kW	14.20 – 14.99	12.45 – 12.84
	8 kW – 12 kW	13.20 – 13.99	12.10 – 12.39
Level 3	≤ 8 kW	13.40 – 14.19	12.00 – 12.44
	8 kW – ≤ 12 kW	12.40 – 13.19	11.80 – 12.09
Level 2	≤ 8 kW	12.60 – 13.39	11.60 – 11.99
	8 kW – 12kW	11.70 – 12.39	11.45 – 11.79
Level 1	≤ 8kW	12.00 – 12.59	11.15 – 11.59
	8 kW – 12 kW	11.00 – 11.69	11.15 – 11.44

The movement to a single test metric (SEER) has significantly increased the share of inverter ACs. In 2013, inverter ACs accounted for 16% of the Thai AC market, increasing to 32% by 2018. Despite this change, different labeling criteria for fixed-speed and inverter ACs have likely slowed market transformation towards higher efficiency, inverter AC units by allowing less efficient, fixed-speed ACs to still receive a No. 5 label. Considering consumers strongly prefer EGAT No. 5-labeled products, adopting the technology neutral label tiers and setting a high enough threshold that only, or mostly, inverter ACs can cross, EGAT No. 5 could further push the market towards highly efficient technologies.¹⁹

In 2018, EGAT rescaled the labeling criteria (Figure 46) in an attempt to help consumers better differentiate the most efficient ACs. A three-star rating was added on top EGAT No. 5 (hereafter referred to as “EGAT No. 5 label with stars”), since manufacturers almost exclusively voluntarily label products that qualify for EGAT No. 5.

v. ASEAN uses Cooling Seasonal Performance Factor (CSPF) as their seasonal metric.

FIGURE 46: EGAT NO. 5 OLD LABEL (LEFT) AND RESCALED LABEL WITH STARS (RIGHT)



In 2020, CLASP, in collaboration with EGAT and with the support of Ipsos Thailand and the International Institute of Energy Conservation (IIEC), conducted a nationwide survey²⁰ among manufacturers, retailers, and consumers to assess understanding and perceptions of the original No. 5 label and the new No. 5 label with stars. Nearly all consumers (94%) would not buy an appliance that did not bear the No. 5 level. Similarly, 84% of the retailers and 90% of the manufacturers thought the label was a very important factor for consumer purchasing decisions, and manufacturers considered it a quality mark for their products. A large portion (70%) of the manufacturers use the higher star rating label to market their products and to promote their brand. Despite the intention of the stars to differentiate products, many consumers are unsure about their exact meaning. Traditional trade retailers said EGAT should have provided marketing materials to enhance consumer awareness about the No. 5 label with stars and help stimulate sales of efficient household appliances.

Case Study 4: Brazil

PRODUCT PRIORITIZATION

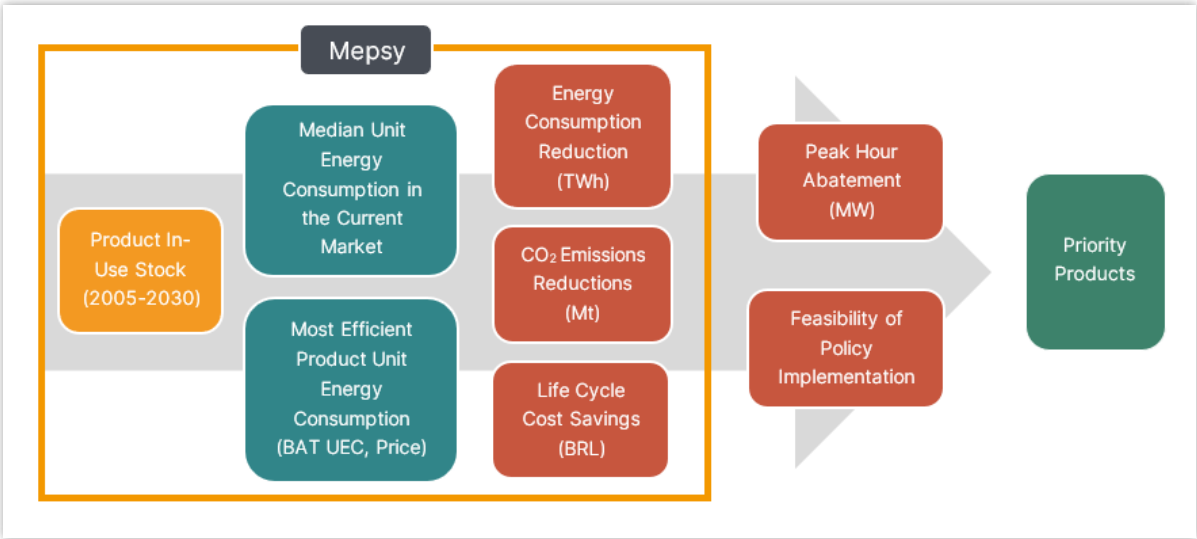
Coordinating Stakeholders. In Brazil there are three energy efficiency policies: mandatory MEPS under MME (Ministry of Mines and Energy), a mandatory comparative label under Inmetro (National Metrology Institute), and a voluntary endorsement label under Procel (National Energy Conservation Program).

Historically there has not been a standardized process for these agencies to identify high impact products to target for policy improvements. In 2022, CLASP designed a process for prioritization in collaboration with MME and Procel for 10 products: residential room ACs, refrigerators, fans, televisions, washing machines, ovens, commercial refrigeration, industrial motors, all-purpose distribution transformers, and lighting. [Mepsy](#), CLASP's Appliance & Equipment Climate Impact Calculator, was used to conduct most of the modeling work in this project, except for peak demand abatement and feasibility of policy implementation (Figure 47).

Detailed methodology for the prioritization project is available in the report “A Path Forward: Prioritizing Appliances for Energy Efficiency Policy Improvements in Brazil.”²¹ The criteria used to prioritize products were:

- Energy consumption reduction (TWh)
- CO₂ emissions abatement (Mt)
- Life cycle cost savings for individual consumers (BRL)
- Peak demand abatement for electric products (MW)
- Feasibility of policy implementation

FIGURE 47: PRODUCT PRIORITIZATION METHODOLOGY



In addition to the Mepsy and peak hour abatement calculations, Procel and MME assessed feasibility of policy implementation for each product using three indicators ranked on a scale from 0 to 5:

- Presence of an advanced monitoring system (e.g., a higher score if there are existing MEPS, labels, test methods)
- Industry acceptance (e.g., a lower score if there is strong industry resistance)
- Other sector policy impact (e.g., a higher score if there are existing complementary policies in other sectors)

Procel and MME's scores were then weighted according to their relative importance to provide a combined feasibility score per product. The products were then ranked according to their scores across the five criteria, which resulted in lighting, motors, and refrigerators emerging as the top three priority products for high impact energy efficiency policy improvements in Brazil (Figure 48).

FIGURE 48: TOP THREE PRIORITY PRODUCTS ACROSS FIVE CRITERIA

PRODUCT	CUMULATIVE ENERGY REDUCTION	CUMULATIVE CO2 EMISSIONS ABATEMENT	PEAK DEMAND ABATEMENT	LCC SAVINGS	FEASIBILITY SCORE
LIGHTING	1	1	1	2	3
MOTORS	2	2	2	1	1
REFRIGERATORS	3	3	3	3	6

Case Study 5: Kenya

KENYA ENERGY LABEL DIGITAL CAMPAIGN

Consumer Awareness Campaign. In late 2020, CLASP and the Energy and Petroleum Regulatory Authority (EPRA) launched a campaign to raise awareness about the Kenya Energy Label that reached more than 2.5 million Kenyan consumers over its 4-month duration. CLASP conducted a baseline survey (904 respondents), which was used to design the campaign, and endline survey to assess success in raising consumer awareness as well as general interest in the energy label.

The baseline survey gauged consumer awareness of the label and the factors they consider when purchasing refrigerators, the only regulated product at the time. The findings were then used to develop a digital campaign including additionally regulated products (ACs, motors, lighting products). Key findings and recommendations are outlined in Table 13.

TABLE 13: BASELINE SURVEY KEY FINDINGS & CAMPAIGN RECOMMENDATIONS

FINDINGS	RECOMMENDATIONS
Consumers care about the upfront cost of their refrigerators, indicating they want to buy products that are cost-effective.	Incorporate messaging about cost-savings. Messaging around the long-term cost savings of higher-efficiency products will encourage customers to purchase products with higher star ratings, despite higher upfront costs.
Consumers claim to care about product energy consumption and will therefore seek higher-efficiency products.	Incorporate messaging about energy-savings. Messaging around energy consumption, monthly electricity tokens, and energy savings will appeal to energy-conscious consumers.
Most consumers conduct research online and through speaking with retailers at point of purchase.	Advertise the campaign on the platforms consumers use to research products. Running online ads through Google and social media will reach consumers who search online to make purchasing decisions.
The majority of pre-purchase research comes from recommendations .	Incorporate messaging around spreading the information to friends and family. Messaging around sharing information and resources with others will help extend the campaign reach.

CLASP and EPRA hired a Nairobi-based marketing firm to develop a unique brand and messaging for the campaign, leading with a slogan that emphasized energy and cost savings: **More Stars, More Savings**. Using the label as inspiration, the design firm created a logo (Figure 49) and brand guidelines for the Kenya Energy Label. The brand was very Kenya-forward, including the national flag colors, to differentiate it from other energy labels present on home appliances sold in Kenya that may confuse the consumer (notably from the European Union).

FIGURE 49: LABEL LOGO



With a budget of \$4,000^{vi} USD, the digital campaign used a combination of advertisements for reach, engagements, page likes, and follows to engage consumers. The graphics and messaging in the campaign combined language about cost and energy-savings with images of products covered under the label scheme (Figure 50). Animated characters were added to create a more personal and approachable appeal to consumers. Most of the ads linked to an external webpage on the EPRA website that had more information on the energy label, as well as an FAQ section and guide to support consumers identify appliances that fit their budget and needs. **Ads featuring the animated characters with messaging on cost savings were most successful.**

vi. \$4,000 was the budget for digital ad costs. The total budget, including for the baseline and endline surveys, graphic designers, and staff time was \$21,000.

FIGURE 50: GENERAL ENERGY LABEL GRAPHIC & GENERAL APPLIANCE GRAPHIC



At the conclusion of the campaign, CLASP conducted an endline survey, calling 1230 respondents to evaluate the reach and impact of the digital advertisements. Overall, there was an increase in the number of respondents who had seen the Kenya Energy Label from 34.1% in the baseline survey to 58.9% in the endline survey. The percentage of respondents who knew what the label meant also increased from 15% to 28.1%. More than 30% of the respondents who recognized the Kenya Energy Label had seen it on digital ads. Additional campaign materials are displayed in the figures below.

FIGURE 51: INSTAGRAM POST FROM KENYA ENERGY LABEL FOR REFRIGERATORS



FIGURE 52: FACEBOOK POST FROM EPRA FOR ACS & TWEET FROM KENYA ENERGY LABEL FOR GENERAL LABEL

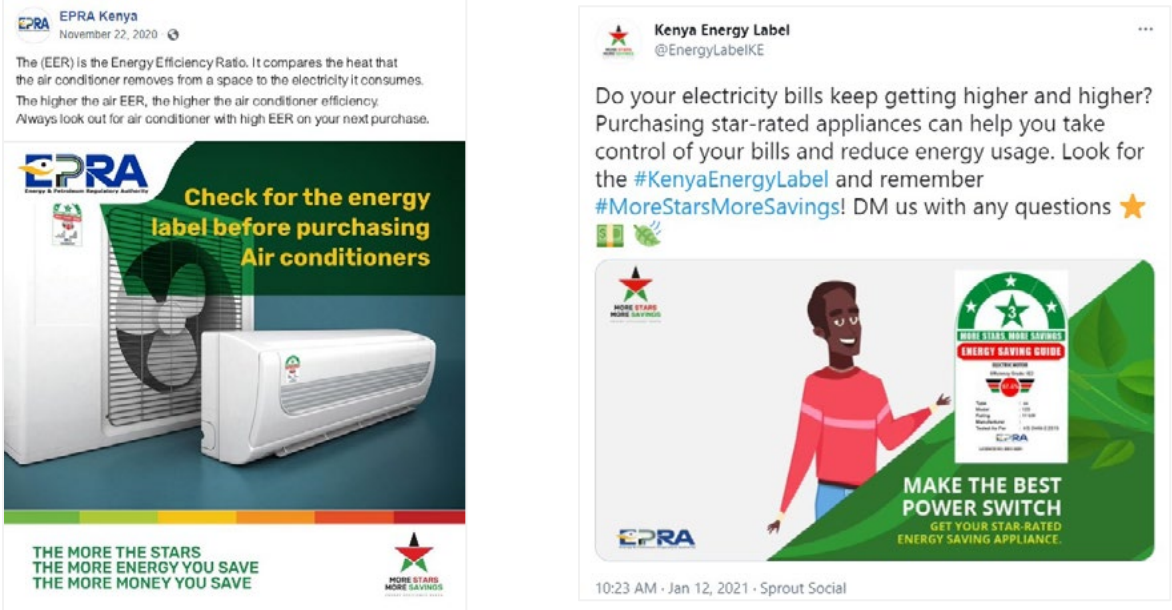
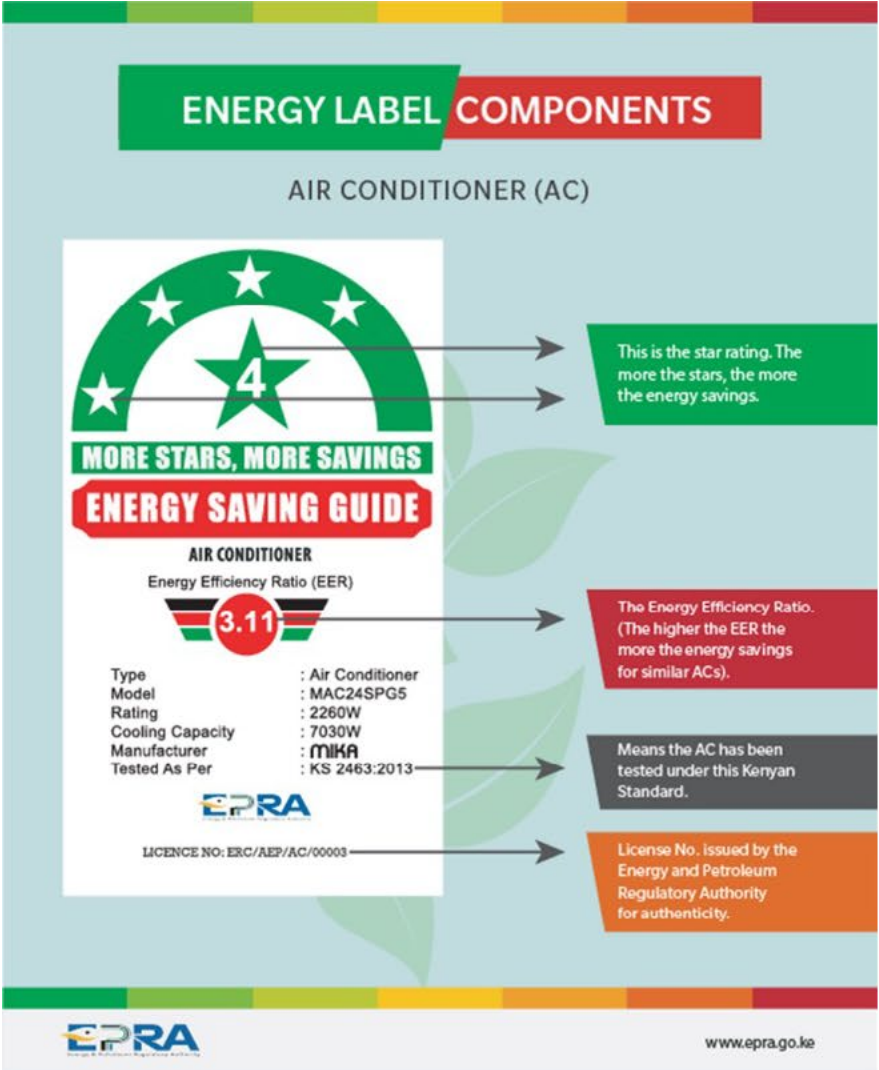


FIGURE 53: ENERGY LABEL COMPONENTS – ANNOTATED AC LABEL^{vii}



vii. Accessible online at: <https://www.epra.go.ke/services/energy-efficiency-project/user-manuals/>

FIGURE 54: ENERGY LABEL COMPONENTS – REFRIGERATOR LABEL IN-DEPTH EXPLANATION^{viii}

ENERGY LABEL COMPONENTS

STAR RATING

The star rating is a measure of how efficient the appliance is in terms of energy savings. More stars means the product consumes less energy, therefore saving you money on energy tokens.



AIR CONDITIONERS


The EER is the Energy Efficiency Ratio. It compares the heat the air conditioner removes from a space to the electricity it consumes. The number for the air conditioner label above is 3.11. The higher the EER, the higher the air conditioner efficiency (if all other specifications are the same). Look for appliances with a high EER.

REFRIGERATOR

The energy consumption is conveyed in kWh/ per year which tells you the quantity of energy your appliance consumes in a year. 1 kWh is equal to one unit on your electricity bill.

The number 320 means that on average, in one year, the refrigerator will consume 320 kWh.

It is better to buy an appliance with a smaller kWh/per year number. You can calculate the cost of running the appliance by multiplying the cost of 1 kWh by the number listed on the label.



ENERGY & PETROLEUM REGULATORY AUTHORITY

License No: ERC/AEP/R/00200,
Serial No; ——— represents the appliance unique identifier provided by the appliance manufacturer

The consumer should always look out for the license number, as the presence of it means the Energy and Petroleum regulatory Authority gave out the label and therefore it is legitimate.

STANDARDS

KS represents a Kenya Standard


KS 2462-1:2013 specifies the energy consumption and performance of refrigerating appliances.

KS 2464-2:2013 specifies the minimum energy performance standard requirements for refrigerating appliances. It has now been replaced by KS 2464-2:2020 (representing the year 2020)

KS 2463: 2013 is a Kenya Standard specifies the testing and rating for performance for non-ducted air conditioners. It has been replaced by KS 2463:2019 (representing the year 2019)

Each appliance must be tested under Kenyan standards. The appliance is tested on its performance in Kenyan conditions to determine its consumption in Kenya. Many appliances are designed for climates in Europe or Asia, which do not reflect the ambient temperature or energy usage in Kenya.

If the product performance is above the minimum specified, it is assigned a Kenya Energy Label issued by the Energy and Petroleum Regulatory Authority. It is important to look for the Kenya Energy Label, rather than alternate labels, because those products have been approved to perform well on the Kenyan market.


www.epra.go.ke

viii. Accessible online at: <https://www.epra.go.ke/services/energy-efficiency-project/user-manuals/>

Endnotes

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